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Holiday Lull Affects All of the Fields

Two Wells in Venezuela Reported Making Around 175,000 Barrels. Eastern Crude Advanced 25 Cents.

By JAMES McINTYRE

The Christmas holidays greatly affected work in the fields. The number of completions fell off everywhere and there was much less new work started. The home-going of oil men was on such a large scale that drilling operations were greatly retarded. The most important news of the past week was the 25-cent increase in the price of Pennsylvania, Cabell and Somerset crudes. This price increase may have only a strictly local significance, but it heartened the Mid-Continent operator, who usually looks to the eastern field price chances as an indication of general price conditions. The news from Venezuela that the Royal Dutch-Shell Oil Company had drilled three wells, one of which was good for 90,000 barrels a day, and a second almost as large, was quite significant. If South American oil fields are to yield wells of the output only expected of Mexican wells, the threatened shortage of crude will be postponed and the export situation in this country may be subjected to considerable change. Most of the Mexican production has come to the United States, but will the same be the case with South American crude? Now that England has become a refiner of oil with success, British oil men may become more important refining competitors than ever, in foreign markets.

Oklahoma

The Prairie Oil & Gas Co. & Wilhoit's No. 1 Tom Hilly, in Section 5-9-10, Hughes County, got the sand about 75 feet deeper than in the same operators' discovery well a little to the south and east in Section 5, and the well started at 40 bbls. an hour, of high grade oil. The Kewanee Oil & Gas Co. surprised the trade with a 1,440-bbl. well in Section 22-14-14, the old Bald Hill district, in Okmulgee County, in sand at 1,845 feet. It was a 10,000,000-foot gasser at first, but drilled itself in. The Templeman Oil Co.'s No. 1 Harrison, in Section 32,9-8, Seminole County, has a showing of oil at 3,490 feet, where the well was shut down to run casing after which the sand will be drilled into. Scott & Levy's test in Section 4-12-11, Okfuskee County, made from 600 to 1,000 bbls. the first day, from sand at 2,666 feet. The rig was struck by lightning and destroyed, so that the well was not immediately completed. The Twin State Oil Co. failed to find the Mississippi lime in its deep test in Section 36-27-5, Burbank district, Osage County, and the well was abandoned. at 3,495 feet. Grimes & Gillespie's well in Section 20-21-12, Bird Creek district, Osage County, is producing 180 bbls. of 46 gravity crude from the second break in the lime. This is in one of the oldest of Oklahoma's producing districts. All the wells reported from the Bristow Field in Creek County were either small wells, comparatively small wells, or dry. In the Burbank Field the Phillips Petroleum Co. and Skelly Oil Co.'s No. 5, in section 19-27-6, started at 1,000 bbls. naturally. No. 6 on the lease in which the tools were lost, was still flowing 2,000 bbls. naturally.

Gulf Coast

In the Gulf Coast fields a 4,000-bbl. well in the Orange Pool was the big event of the week. The Amerada Petroleum Co. deepened No. 2 Kishi-Lang to 3,925 feet, and it started flowing at the above mentioned figure. This well is in a heretofore neglected part of the pool. The shallow sand in Milam County was extended a mile north from the Rockville-Tracy district by Thornton and others' No. 1 Battie, a small producer. Eight locations have been made west of Lockhart, Caldwell County, following the completion of the Prairie Lea Production Co.'s 100,bbl. well at 2,100 feet. It is reported from La Salle County that oil was found in a well being drilled for water at 2,700 feet, and the sand will be tested. New wildcat work has been started in Southern Louisiana. In Webb County, Texas, late completions include Dixie Oil Co.'s No. 4 Survey 460,100 bbls. Smackover crude is affecting Gulf Coastal crude sales, as the Arkansas product is being offered at lower prices than Coastal operators can meet. In the Humble Pool, The Texas Co. has three wells on the Koehler lease, making 2,200 bbls. in the aggregate. They are Nos. 16, 24, and 33. In the Goose Creek Pool the Humble Oil & Refining Co.'s No. 1-A Isenhour, west side of the creek, was abandoned at 4,950 feet.

MID-CONTINENT PRODUCTION

Estimated daily production of the fields of the Mid-Continent at the close of the past week was as follows: North Louisiana 74,360 barrels; Arkansas, El Dorado, 22,220 barrels, and Smackover, 200,000 barrels; North Central Texas, 124,741 barrels; East Central Texas (Mexia, Currie and Corsicana) 69,089 barrels; Kansas, 86,625 barrels; Oklahoma — Cushing and Shamrock, 27,500 barrels; Healdton, 18,300 barrels; Hewitt, 26,675 barrels; Burbank, 84,641 barrels; Lyons-Quinn, 11,000 barrels; Tonkawa, 28,100 barrels; other Oklahoma pools, 226,000 barrels. Total all fields, 999,251 barrels, a gain of 11,926 barrels in comparison with the preceding week.

The estimated daily production of heavy gravity oil in the Gulf Coast Field was 114,137 barrels.

Arkansas-North Louisiana

Twenty-four new wells were completed in the Smackover Field in Arkansas, with a total estimated production of 39,000 bbls. of oil and 80,000,000 feet of gas. Six of the completions were in Union County. The Gulf Refining Co.'s No. 1 James, Section 6-16-15, is flowing 8,000 bbls. A number of edge wells were completed and one well was finished a half mile north and west of production. This was the Forrest Oil Co.'s No. 1 in Section 26-15-16, good for 500 bbls. The Pure Oil Co., on the east edge, finished a 2,000-bbl. well and a 1,500-bbl. well on the Brister farm in 28-15-15. The Arkansas Chief Oil Co.'s No. 3 McKenzie, in Section 36-15-16, started at 1,000 bbls. The Sinclair Oil & Gas Co.'s No. 2 Linahan, in Section 36-15-16, started at 2,500 bbls. and No. 4 at 5,000 bbls., and the Vitex Oil Co.'s No. 1 Linahan is a 1,000-bbl. well. The Simms Oil Co.'s No. 1-B Laney, in Section 31-15-15, is flowing 2,000 bbls., and No. 2 Nanny Murphy in Section 29-15-15, 5,000 bbls. The other wells were big gassers and smaller oil wells. The other fields in the State and in Lonisiana were lacking in features.

North Central Texas

Sinclair Oil Co.'s No. 2 Kissinger, in the Herron City district, Young County, Texas, is flowing 700 bbls. naturally at 2,550 feet. The well is regarded as of special importance because of its location north of the Brazos River. Pigg and others' No. 3 Hirschi, in north Wichita County, 700 feet west of the No. 2 Hirschi gusher, is flowing 500 bbls at a depth of 1,884 feet. The largest completion in the Electra district was McDaniel and others' No. 5 Douglas, good for 200 bbls. at 1,950 feet. The other new producers there are making 150 bbls. each. The Texas Co.'s operation south of Graham, touched the lime in No. 2 Jake Jones at 3,825 feet and began to flow, with every indication of making a good producer. The Halmack Oil Co.'s No. 1 Hall, 4 miles southeast of Graham, after being cleaned out and reconditioned during the past week, is flowing 500 bbls. In the Pioneer Pool, Eastland County, the Fidelity Oil & Gas Co.'s No. 1 Gardenshire, when drilled into sand reached at 2,055 feet, began flowing by heads at the rate of 20 bbls an hour. Operations in Brown County are increasing. Two completions there during the past week were making 70 bbls. daily each. The shallow fields of Shackelford and Callahan Counties averaged more than one completion a day during the week. In Mitchell County, Mitchell County Oil Corporation's No. 1 Badgett, for the second time is flowing wild around 40,000,000 feet of dry gas and 5,000 bbls. of salt water at 1,070 feet.

Eastern Fields

In the Eastern fields, southeastern Ohio developed two good wells, both in the Clinton sand. E. H. Everett Co.'s No. 3 Simpson, in Hanover Township, Licking County, swabbed 107 bbls. in a day, and Hazlett & Co. got a 50-bbl. well in Hopewell Township, same county. In the Tidioute Field in Warren County, Pennsylvania, Carnahan's well on the Jennings farm, was drilled deeper and started at 250 bbls. and the same owner's No. 3 Siggins opened at 500 bbls.

West Kentucky-Tennessee

In the Keen Pool, southwest of Scottsville, Kentucky, Hinton & Houghton completed their No. 5 at a depth of 115 feet, and it had a flush production of 35 bbls. The Hutchens Oil Co. completed No. 3 Pitcock, south of Glasgow, in Barren County, good for 25 bbls. at 477 feet. In Warren County, the Farmers Oil & Gas Co.'s No. 1 Speck, in the Reeves district west of the Waller-Runner Pool, was reported dry at 1,400 feet. Several fair pumpers were completed in Allen County. It is reported the Big Bend Petroleum Co.'s No. 1 in the Mt. Pleasant district of Daviess County is dry at a depth of 1,086 feet. A well drilled by the Iuka Development Co. about 5 miles southeast of the town of Iuka, in Tishomingo County, Mississippi, is said to have encountered 16 different oil bearing sands down to a depth of 1,902 feet.

California

The big wells of the week in the California fields up to the writing of this review, included the Union Oil Co.'s No. 2 Howard, in Santa Fe Springs, good for 3,670 bbls.; Golden Dome Oil Co.'s No. 1 Ward, at Huntington Beach, 1,000 bbls.; Metropolitan Oil Co.'s No. 1 Sleuman, 2,000 bbls.; Standard Oil Co.'s No. 1 Torrance, at Torrance, 600 bbls. The daily production of the State is crowding the half-million mark.

Mexico

The Mexican Eagle Oil Co.'s No. 4 Perez, Lot 161, Chinampa, is a 3,000-bbl. fluid well at 2,101 feet, 50 per cent salt water. The wildcat test in Cabo Rojo, Cia. Pet. de Tepetate's No. 1, Lot 21, is a failure at 2,870 feet. In the Marland Field, the Cia. Pet. Franco Espanola's No. 6 Limon is a completion at 2,506 feet, and is flowing 75 bbls. daily.

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YEAR'S BUSINESS OUTLOOK

At the outset of 1923, business men throughout the nation turn naturally to a consideration of conditions which will affect their operations. It is so in the oil industry as well as any other. Of course the prime hope of the oil man is that crude prices will advance. But all business conditions will be affected this year probably to a greater extent than ever by conditions abroad. Decisions regarding reparations, debt refunding and other matters vitally affect American business and whatever affects American business as a whole, cannot fail to have a resultant action involving individual enterprise.

There is no doubt that prosperity is gaining a strong foothold in this country. It is reflected in greater production, greater buying power and more confidence in the future. This change from the after-war depression has come about gradually, hence it is substantial. The mills in steel centers are operating at almost 100 per cent capacity. That is as good a barometer as any other. From the financial centers come reports of a greater interest in reliable securities upon the part of the general public. All of these things indicate prosperity is at our door.

The clouds on the horizon are the situation in Europe and a tendency upon the part of certain interests to unduly increase prices. While petroleum and its products have been greatly decreased in price, there has been a substantial advance in costs of other necessities. The housing shortage has not been relieved fully, the railroads are in great need of more equipment and repairs, and in practically every other line of business there is seen a revival of trade. If this is continued along conservative lines, nothing can stop this nation from enjoying one of the greatest periods of prosperity in its history.

As to crude prices, it is a natural expectation on the part of oil men that they will advance. It is inevitable. The demand for petroleum products is increasing and the peak of crude production has about been reached. On Saturday, December 30, Pennsylvania, Cabell and Somerset crudes were advanced 25 cents, for no other reason than that the refineries needed the crude and producers had been holding it and not drilling for new production because of the low prices offered. The advance in the East has put new life into the Mid-Continent oil man, and he is now all set for a general upward revision of the price scale.

OKLAHOMA BREAKS ITS RECORD

Estimating the daily production of Oklahoma in the month of December at 420,000 barrels a day, which is purely a guess, as it will be two weeks before the real production can be compiled, we find that the State during 1922 produced 148,551,429 barrels of crude petroleum. This is 32,871,853 barrels in excess of the quantity produced in the State in 1921 which was 115,679,576 barrels. All production records for the State were broken in 1922. The year 1915, when Cushing was at its height, showed a production of 117,910,444 barrels, which was the record year up to the one just closed. The 1915 output was 30,640,985 barrels below that of the past year.

The Oil and Gas Journal's records of production per year go back to 1891, which was the beginning of things, and from these we find that the State from 1891 to 1922 (both years inclusive), and covering 32 years, produced 1,353,735,829 barrels, and the only revision this total may be subjected to is the one item of December, 1922, which is carried as 13,020,000 barrels, and which will no doubt be changed a little in the official figures in our annual report later this month, but not sufficiently to make much difference in such a large quantity as the State's total above given. From 1891 to 1903, (both years inclusive), the production amounted to 193,565 barrels, which is not much more than 11 hours' production at the present time. The year 1904 showed a total of 1,366,748 barrels and the next year, production took a jump to 6,466,200 barrels, and then came the opening of the Glenn Pool, which boosted the year 1906 to 18,030,600 barrels. The Glenn Pool was also largely responsible for the big production in 1907, which totaled 43,524,128 barrels. It was not until 1914 in the earlier days of Cushing, that the State reached the 100,000,000 mark in a year, and that year saw production reach a total of 102,897,327 barrels, and the following year it established a record that held until 1922.

It would take a man of the most supreme optimism to predict that 1923 will exceed or even closely approach the record of the past year in this State. Looking over the fields it does not look probable at this time that the State can maintain the tremendous pace it set in the year past, but we know of some very smart oil men who figured in mid-year that daily production would be down to 350,000 barrels, by the close of 1922, and instead of diminishing, it increased, recording 438,435 barrels in July, 427,907 barrels in August, 419,984 barrels in September, 426,521 barrels in October, 419,452 barrels in November, and 420,000 barrels (estimated) in December. Its record for the second half was 78,281,523 barrels as against 70,269,906 barrels, in the first six months of the year.

The development of Bristow, Burbank and Tonkawa Fields was largely responsible for the increased production in the last half of the year, but only one of these fields, Tonkawa, is expected to increase its present day production. Burbank is slipping and Bristow is not expected to again reach the high production record it has made, and the falling off in the old fields, while it may be gradual, is none the less inevitable. New pools must be opened to keep up the record of the year just closed, and at the opening of 1923, there is nothing in sight excepting Tonkawa that looks like a big producing territory.

California's production for 1922 will be about 139,100,000 barrels, an average of about 381,100 barrels a day, considerably less than Oklahoma, which averaged about 407,000 barrels a day. In the total amount of oil produced, California will have led all the United States, as from 1876 to 1922, both years inclusive, it produced in the neighborhood of 1,456,458,576 barrels.

HAULING BY TRUCK

Hauling by motor truck is the subject of a paper published in this issue in which is set forth the past year's results in the organization and conduct of a department of hauling by one of the large Oklahoma producing and refining organizations. The writer points out that hauling is important in that it must be done promptly and systematically and according to schedule, and to do this it must have the co-operation of all operating departments, and to maintain this co-operation this company charges each department for hauling on a per hour basis. The centralization of truck orders in one man is a measure of economy, as it makes possible in many cases two-way efficiency—that is, loads outward and back. The writer claims that automobile truck hauling is cheaper than hauling by means of horses. The question of over-equipment and its economic waste is treated, and the importance of having trucks of a size commensurate to the needs required is brought out. Standardized equipment is another economic point discussed, and how to purchase trucks is given considerable space in the article. Gasoline consumption and costs, truck repair costs, the factor of speed, the maintenance of a cost accounting system with each truck as a unit, and a monthly study of a summarization of these accounts, the question of what is a good truck driver, tire expense, insurance, depreciation, general overhead and rates for hauling are other things considered. The article is well worth the study of oil men and corporation officials with hauling problems. It contains more real meaty information on the subject than any story we have seen.

SQUELCHING THE AGITATORS

The mayor of Breckenridge, Texas, is to be commended on his action forbidding a meeting of I. W. W. agitators, in that oil country town. In common with the rest of the West and the Southwest, the Mid-Continent oil country had more than its fill of the I. W. W. during the World War. True, the oil industry suffered less from it than other industries, but among the floating workers in the field and on pipe lines the mischievous agitators interrupted the wheels of progress until they were driven out by force. As a rule the I. W. W. members are floaters and it is among the non-settled workers they preach their doctrines of unrest and industrial revolution. They make no progress among intelligent salaried men or wage earners whether these be of the "white collar" class or the skilled mechanic or craftsman, and the sympathy of regularly organized labor is not with them any more than it is with advanced Socialism, but the mayor of Breckenridge was right in stopping them before they had a chance to make trouble among the only class they can reach.

There should be no room in the oil industry for mischievous agitators. This is especially true in the production end of the business. Wages are uniformly good and living conditions on a par with town life in many oil field "camps." It is hard to upset the equilibrium of an oil field workman who lives in a cozy house, with running water, electric lights, gas for fuel in unlimited quantities, room in the yard for a good garden patch, nearby schools for his children, and a wage that will permit him to save money. Added to all that is the spirit of comradeship between himself and his superior, who in most cases rose from the ranks, and the fact that he, too, if he has the right stuff in him, can advance.

In the class of oil country work that calls for the employment of the non-settled, unskilled laborer, the only thing that might be said against it is that the work is hard, but the wages are on a par, at least, with those paid the same kind of workmen in any line and the work is eagerly sought, because, as a rule, it means good food and decent sleeping accommodations along with adequate pay.

Some of the high officials and many minor officials of American pipe lines started out as water boys or laborers on pipe line gangs, and remained in the work, advancing because they had the brains to learn and the willingness to work. They didn't take the time to brood over fancied wrongs or hunt for trouble or listen to gloomsters such as propagate I. W. W. doctrines.

The isms of the I. W. W. are destructive and they can do a man no good to learn them, much less adopt them. It is much more constructive to teach a young fellow starting out at the bottom that he can get to the top if he has the capacity and the ambition than it is to instill into his mind the doctrine that he is nothing but an exploited creature making some idle fellow rich by the sweat of his own brow, and that there can be no relief from this unless he grabs what he wants while the grabbing is good.

Remarkable Year in Refining Industry

Developments of Far Reaching Consequence Took Place in 1922 Resulting in a Veritable Refining Renaissance.

By J. B. Gambrell

In many respects 1922 will go down in the annals of the Mid-Continent refining industry as one of the most remarkable years in its history. Developments of such far-reaching consequence have occurred such as the renaissance of operations, the installation of cracking processes and the grading of crudes, which may well make the year 1922 the turning point in the affairs of independent refiners of this territory.

With the oil industry on the threshold of an other year, however, there is a marked difference in the statistical position of the Mid-Continent refining division today and that obtaining at the beginning of the year 1922. Refineries of the Mid-Continent Field embracing the refining areas of Oklahoma, Kansas, North Texas, North Louisiana and Arkansas, are running through their plants roughly 82,260 barrels more of crude oil daily on January 21 than they were a year ago.

At the beginning of 1922 refiners in this district were charging through their stills a total of 233,000 barrels of crude daily, divided by States as follows: Oklahoma, 119,000 barrels; North Texas, 48,000 barrels; Kansas, 36,000 barrels; North Louisiana, 18,000 barrels and Arkansas, 12,000 barrels. One hundred and sixty-five plants were shut down for one reason or another.

Comparative figures for the same area at the close of the year just passed showed current daily runs of approximately 315,260 barrels daily; Oklahoma plants handling 115,180 barrels daily; North Texas, 70,100 barrels; Kansas, 65,100 barrels; North Louisiana, 14,000 barrels; and Arkansas, 10,480 barrels. At the same time there were 117 plants classified in the inactive column.

This remarkable revival of refining operations in a year which has shown more industrial incongruities than any other similar period in recent years, was due to several factors. At the beginning of 1922, refining operations in the Mid-Continent Field were at a low ebb. This division of the industry began to feel the effect of the world wide business depression when on August 26, 1920, the general freight advance became effective. A curve of refining operations from that point to the first of 1922 shows an almost perpendicular decline. When, however, the outlook appeared gloomiest another factor entered into the situation which practically reversed conditions—the entry of the Union Petroleum Company into the market for export materials.

Very few students of marketing conditions including even the veteran refiners and marketers realize what a potent influence the Union Petroleum Company has been in the Mid-Continent refined oil situation. This company first entered the market for high gravity gasoline around the middle of December, but the effect of its purchases were not felt until about January 5, when it bought about 3,000 cars of refined products, principally 64-66 gasoline. From that date on up until June 1, the Union not only bought all the high gravity motor fuels available but also was a heavy purchaser of New Navy, kerosene and wax.

Some idea of the volume and magnitude of the Union's Mid-Continent purchases and their effect upon market conditions and prices may be obtained from the fact that this company purchased during 1922 a total of 16,500 cars or 132,000,000 gallons of gasoline from independent refiners of this territory and 8,500 cars or 68,000,000 gallons of kerosene for movement to European countries. Its total export business for the year was 622,000 tons with a total number of cargoes of 135. These figures do not include purchases of wax, of which it is the principal outlet for Mid-Continent manufacturers, nor does it include its regular domestic requirements which it covers in this territory, which runs into thousands of cars annually.

While the Union practically carried the Mid-Continent market on its shoulders up until the first of June and all indications pointed to an unprecedented era of prosperity for refiners of this district, suddenly this company discovered that gasoline prices which had mounted from around the 13-cent level for New Navy, up to 19 cents, had reached a point where it was unable to meet foreign competition, and as a consequence it was forced to withdraw from the market temporarily. Since that time its export purchases have been distinctly curtailed and it now has heavy stocks of gasoline at its Westwego terminal.

Just at the time the Union's withdrawal and the buying strike of jobbers, due to the close margin between refinery prices and tank wagon, resulted in motor fuel prices tumbling, refiners witnessed the spectacle of a soft gasoline market when they had every reason to expect it to be strongest, the menace of the coal strike rescued the situation by stiffening up heavy oils. This had the tendency to cause refiners to continue operations at capacity even when it became obvious that little could be expected of gasoline.

Another factor which served to commit refiners to a continuation of high crude runs was the fact that the majority of plants in this territory had contracts with the principal southwestern railroads which necessitated capacity operations. During 1922 the Santa Fe took from Mid-Continent refiners roughly 300,000 barrels of fuel oil daily, and the Frisco and Katy contracts called for about 100,000 barrels each. These contracts forced many refiners to run much more crude during the fall and winter of 1922 than they ordinarily would.

While naturally with fuel oil bringing 90 cents or better, and the posted price of Mid-Continent crude $1.25, refiners were able to take less for their light oils, the continuation of operations in the face of a diminishing consumption, which is a seasonal condition has resulted in a significant difference between the conditions of stocks at the outset of 1923, and a year ago. On December 31, 1921, gasoline stocks for the entire country totaled 586,087,132 gallons, with 84,933,069 gallons in the tanks of Oklahoma and Kansas refiners. The Bureau of Mines reports for October, 1922, the latest statistics available, show gasoline stocks of 723,584,062 gallons with Oklahoma and Kansas refiners having on hand 128,493,078 gallons, with all indications that gross motor fuel stocks for the country will total at least 800,000,000 gallons when November and December figures are compiled.

Independent refiners, while not unmindful of the unhealthy gasoline condition being created by the large volume of crude they were running, have had another matter of much more fundamental importance to reckon with—the grading of crude. On November 22, the Prairie Oil & Gas Company announced the abandonment of its old policy of purchasing Mid-Continent crude on a one-price basis and declared that in the future, through a classification of crude, it would endeavor to purchase oil on a basis of its intrinsic value.

The Prairie's action, which came as a result of this company discovering that by the continuation of the old obsolete method that it was in reality out of the high gravity crude market, resulted in the utmost confusion in Mid-Continent refining circles. Fuel oil contracts were automatically abrogated, crude arrangements jeopardized and as this is written the question of premiums and fuel oil adjustments have not been definitely settled.

While the majority of Mid-Continent refiners had felt for a long time that the grading of crude was inevitable and had ample warning from many quarters that the day was not far distant, only a few of the more far-sighted organizations had made any provisions to meet such a situation and it is as yet too early to forecast what will be the ultimate effects.

Some of the Mid-Continent concerns, however, sensing that crude would be graded to the point where it would be almost as essential to operate on low grade oil as it would be to handle premium crude, have already discounted this development to a large extent by the installation of some form of cracking process. The movement towards the perfecting of refining practices and the installation of cracking processes may best be visualized by the following list of plants which have installed or are installing some form of process to increase their gasoline yield:

Globe Oil & Refining Company, Blackwell, Okla., has in operation the Cross Process; Marland Refining Company, Ponca City, Okla., Sterling Oil & Refining Company, Wichita Falls, Texas, Grayberg Oil & Refining Company, San Antonio, Texas, and the Star Refining Company, Fort Worth, Texas, the Fleming Process; Tidal Refining Company, Drumright, Okla., and the Lyons Oil & Refining Company, El Dorado, Burton Process; Shaffer Oil & Refining Company, and the Moore Oil & Refining Company, the Dubbs Process; Caddo Central Oil & Refining Company, and the Clayton Oil & Refining Company, are using the Christman Patent; White Eagle Oil & Refining Company has for several years used the Burton Process, which it is increasing; the Empire Refineries, (Inc.), are using the Coast, and Cosden & Company, the Cosden-Coast Process. In addition to these plants there are many other concerns like the Kansas City Refining Company, which are using a process of their own or are known to be contemplating putting in some form of pressure stills.

Chief interest in the Mid-Continent Field as this goes to press, centers on the future of crude and the tank wagon. In respect to the former there is a unanimity of opinion that higher crude prices will prevail during 1923, particularly for high gravity oils. Production of the Mid-Continent Field, eliminating Smackover, which it is felt is not a factor in determining the trend of Mid-Continent high grade crudes, shows a decline in the neighborhood of 355,000 barrels since July and this condition is expected to become more marked during the next couple of months, as there are only two fields, Burbank and Tonkawa, which are showing much activity.

On the other hand, while there may be a few more readjustments in tank wagons there is little reason to believe that the present retail price structure will be materially impaired, in view of the fact that the average tank wagon quotation is now below the low point for 1921 by 1.3 cents, as shown by the accompanying table, which shows the present gasoline prices in 13 of the largest cities, the peak for 1922, the low of 1921, and prices at the beginning of 1920 and 1921:

COMPARATIVE TANK WAGON PRICES

		1922	1921	January 1	
	Present	High	Low	1921	1920
Atlanta, Ga.	19.0	27.0	20.0	31.0	26.0
Baltimore, Md.	21.5	26.0	21.0	29.5	28.5
Birmingham, Ala.	17.0	24.0	20.0	31.0	27.5
Boston, Mass.	22.0	27.0	26.5	32.0	28.5
Butte, Mont.	21.5	27.5	23.5	32.5	26.5
Chicago, Ill.	18.0	23.0	18.0	27.0	24.0
Cleveland, O.	19.0	23.0	20.0	30.0	25.0
Dallas, Tex.	16.0	23.0	18.0	31.0	26.0
Denver, Colo.	18.0	26.0	22.0	32.0	25.0
Des Moines, Ia.	19.1	24.4	19.5	28.5	24.0
Detroit, Mich.	19.4	24.4	19.9	28.8	24.5
Houston, Tex.	18.0	23.0	18.0	29.0	26.0
Indianapolis, Ind.	18.8	23.8	18.6	28.3	26.5
Kansas City, Mo.	17.5	21.5	15.0	26.5	23.4
Louisville, Ky.	19.0	24.0	23.0	28.5	26.5
Memphis, Tenn.	15.5	24.5	22.0	30.0	25.0
Milwaukee, Wis.	18.6	23.7	19.3	27.9	24.1
Minneapolis, Minn.	19.5	24.7	19.2	28.2	25.0
Newark, N. J.	21.0	26.0	21.0	28.5	22.0
New Orleans, La.	16.0	24.5	19.5	28.5	22.5
New York, N. Y.	22.0	27.0	24.0	31.0	24.5
Omaha, Neb	18.25	23.0	18.5	29.5	24.0
Philadelphia, Pa.	21.0	26.0	21.0	31.0	25.2
St. Louis, Mo.	18.5	23.2	16.2	26.2	22.6
St. Paul, Minn.	21.5	24.2	21.2	28.2	24.0
San Francisco, Cal.	19.0	21.0	21.0	27.0	21.5
Seattle, Wash.	21.0	23.0	23.0	28.0	22.5
Tulsa, Okla.	16.0	24.0	17.0	28.0	23.0
Vicksburg, Miss.	17.0	25.0	21.0	28.0	26.0
Wilmington, Del	21.0	26.0	21.0	31.0	25.5
Average	18.9	24.4	20.2	29.3	24.7

MEN KNOWN IN OILDOM

L. V. HULL

L. V. Hull, vice president of the Paragon Oil Company, one of the Paragon group of companies which has its main offices in Toledo, Ohio, started in the oil business when 15 years old. At that time he secured a job as a pumper near Rising Sun, in Wood County, Ohio. He previously had attended the country schools of that State in which he was born. He held different positions in the fields of Ohio and in 1907 was transferred by his employers to the Muncie Field of Illinois.

In 1913, he became associated with the Paragon Refining Company, of Toledo, as a stationary engineer and gauger and has remained in continuous service of that organization. In 1917, he was transferred to the Kansas fields and in the latter part of that year was elected to his present position. In 1919, he moved to Wichita Falls, Texas, to take charge of the North Texas operations of the company. The company operates a pipe line and has production in that section.

PERSONAL PARAGRAPHS

C. T. Stratem, of New York, a director of Cosden & Company, spent a few days last week at the Tulsa offices.

* * *

C. A. Braley, vice president of the Sinclair Consolidated Oil Corporation, spent last week at the Tulsa offices.

* * *

James Donohoe, one of the pioneer operators in the Batson Pool of Louisiana, visited in Houston during the week.

* * *

A. D. Morton, oil operator of Bartlesville, Okla., spent part of last week at Okmulgee, Okla., and the oil fields of that district.

* * *

E. V. Newkirk, in charge of the Indian Refining Company's pipe line in Kentucky, spent last week at his home at Gary, Indiana.

* * *

Frank Welch, connected with the Illinois Refining Company, spent the holiday season with friends in Tulsa and other Oklahoma points.

* * *

W. Ray Hogan is back in Bowling Green, Ky., after a business visit to Chicago, in the interest of the Hogan Development Company.

* * *

R. L. Young, president of the Monarch Oil & Refining Company, of Houston, Texas, has returned from a business trip to New York.

Charles Graham, who has been located in Houston and at Orange, Texas, for the National Supply Company, has been transferred to Pittsburgh, Pa.

* * *

C. A. Morrison, general superintendent of the Indian Refining Company, spent a few days in the Warren County Field of Kentucky last week.

* * *

F. A. Bates, of the Land Department of the Skelly Oil Company, is now located in El Dorado, Kansas, where he will represent the company permanently.

* * *

H. K. V. Tompkins, general agent for the Mexican Gulf Oil Company, in Mexico, has returned to Tampico, after a trip to the Houston offices of the Gulf Companies.

* * *

Martin Moran in charge of the Oklahoma operations of The Texas Company, has returned to the Tulsa offices after being confined to his home for a few days due to illness.

* * *

H. W. Hawkins has resigned as treasurer of the Producers & Refiners Corporation, and is back in the banking business as trust officer of the Standard Trust & Savings Bank of Chicago.

* * *

Frederick A. Frank has assumed his duties as general sales manager of the Sharples Specialty Company, with headquarters in Philadelphia, Pa. Mr. Franks has been in charge of the Tulsa office of the company.

* * *

Charles Lupton, geologist, passed through Casper, Wyoming, last week en route to the Sheldon Dome, to see the well drilled in by the Superior Syndicate. Mr. Lupton is the discoverer of the Sheldon Dome, and locator of the well.

* * *

The Moran Pool of the North Texas district, located in Shackelford County, is one of the most promising shallow fields of the Mid-Continent, according to C. O. Bettison, operator, who was visiting Oklahoma friends last week.

* * *

R. S. Ellison, vice president of the Midwest Refining Company and general manager of field operations of that firm, is in Chicago in conference with the heads of the various departments of the Standard Oil Company of Indiana.

* * *

George Bryson and Fred Webb, of Petrolia, will leave early in 1923 to drill in the Colombia fields. Hugh Snyder, for the past 15 years drilling in the Tilbury Field, will leave shortly with a crew of 12 men to drill in Mesopotamia.

* * *

Earl L. Fox, connected with the Land Department of the Arkansas Natural Gas Co., of Shreveport, La., has been looking over the company's holdings in the western Kentucky fields with Art Halpin, the field manager in that district.

* * *

R. Otis McClintock, vice president of the Gypsy Oil Company, who underwent an operation for appendicitis at Kansas City, Mo., recently, is reported as speedily recovering. Mr. McClintock is connected with the Tulsa offices of the company.

* * *

Thomas White, chief engineer of the Sinclair interests in Wyoming, is now in charge of the Teapot Dome operations of the Mammoth Oil Company, while William Connelly is in the East. Mr. Connelly is spending the holidays with his family.

* * *

L. S. Allen, Mid-Continent representative of the Sizer Steel Corporation, Buffalo, N. Y., will leave January 2 for a tour of Texas in the interests of the company. His itinerary will take him to Fort Worth, Dallas, Wichita Falls, Houston, and other points.

* * *

T. A. Link, who has been engaged as geologist for Imperial Oil, (Ltd.), in Alberta, will leave shortly for Cartagena, Colombia, to investigate the oil holdings of the International Petroleum Company. Mr. Link, who will be accompanied by Mrs. Link, expects to be gone a year.

* * *

John Reynolds, secretary of the Western Petroleum Refiners Association, spent part of last week and the fore part of this week visiting refineries in Oklahoma and north Texas. He was accompanied on part of the trip by Walter Willard, field secretary of the organization.

* * *

J. M. Bellamy, who has been manager of natural gasoline sales for the Sinclair Refining Company, is now in charge of sales for the Tulsa office of the company. Mr. Bellamy succeeds J. F. McMahon, who was transferred to the Chicago office of the company several months ago.

* * *

C. C. Ladley, formerly with Carter Oil Company, is now in charge of the western division for the Superior Oil Corporation, which recently opened offices in the Wright Building at Tulsa. Miss T. McCallister, also formerly connected with the Carter Oil, is in charge of the Tulsa office.

* * *

With several friends from the Mid-Continent section and eastern points, T. B. Slick, prominent oil operator, is enjoying a hunting trip at his plantation near Aberdeen, Mississippi. Mr. Slick is an Oklahoma operator who was connected with the discovery of the Slick Pool, but now makes San Antonio, Texas, his winter home.

* * *

President E. B. Carson, of the Carson Petroleum Company, of Chicago, in accordance with his annual custom, entertained his executives, business associates and managers of branch offices at a dinner and dance at the Chicago Athletic Club recently. Fifty-five men enjoyed the occasion. Mr. Carson was presented with a traveling bag by employes of the company.

* * *

S. Henney is now located at Ponca City, Okla., as representative of the Roxana Petroleum Corporation, which has large interests in that section through the Comar Oil Company, which it jointly owns with the Marland Oil Company. Mr. Henney has been connected with the oil business at widely scattered points. For a number of years he was employed by the Dutch-Shell interests.

* * *

M. M. Makeever, W. D. Austin, A. R. Bailey, V. Genna, of Boston, Mass.; J. S. Cooper, C. A. Richman, A. E. Milner, of Philadelphia, Pa.; and D. E. Bisbee, of Maine, all associated with the firm of Makeever Brothers, of Boston, Mass., were in Bowling Green, Kentucky, last week to witness the shooting of this company's well on the Sandidge lease, in the Sandidge-Belcher Pool, northwest of Bowling Green.

* * *

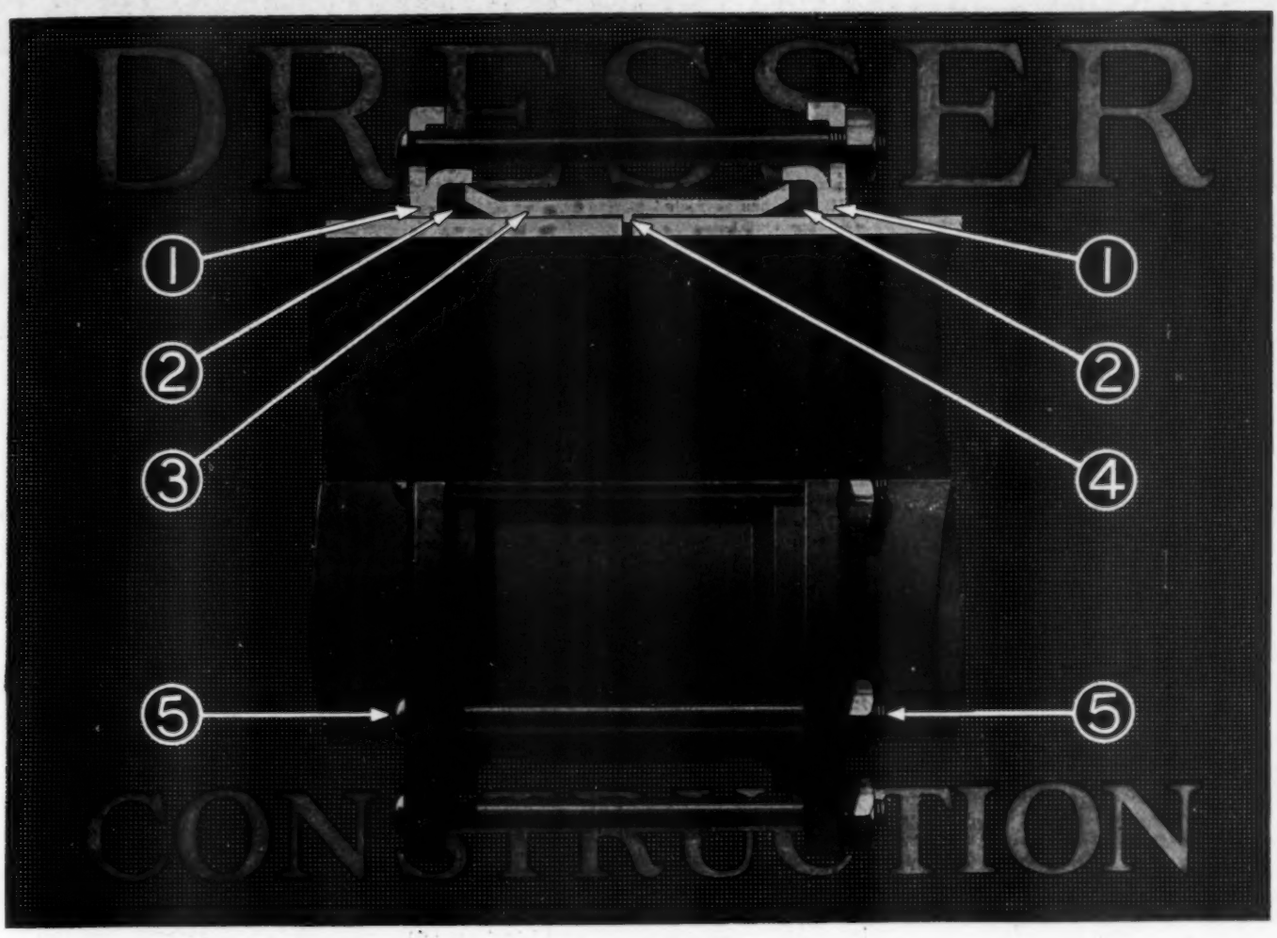
H. F. Miller, in charge of natural gasoline purchasing for the Carter Oil Company, is spending a vacation with friends in New York and other eastern points. Mr. Miller is wearing the diamond button given by the Standard Oil Company of New Jersey, to employes who have been in the service of the company 20 years. Mr. Miller was formerly secretary to Walter Teagle, president of the Standard Oil Company of New Jersey.

* * *

W. K. Plumb, treasurer and general manager of the National Co-operative Oil Company, Grand Rapids, Mich., was a visitor at the offices and refinery of the Marland Refining Company at Ponca City, Okla., recently. Mr. Plumb attended a part of the Second Annual Branch Sales meeting, including the banquet, and spent a half day going through the refinery. The National Co-operative Oil Company distributes Marland products at Grand Rapids, and a number of other points in Michigan. It was Mr. Plumb's first visit to the source of the products he sells.

* * *

A. B. Ayers, president of the Union Oil & Gas Company, of Fortville, Ind., last week was the guest of Joseph Seep, head of the Joseph Seep Purchasing Agency of the South Penn Oil Company. Mr. Ayers is head of a company which has established a remarkable record in eastern fields. The Union Oil & Gas Company opened up the Johnson-Magoffin district in Kentucky in 1917. Last week the company completed three wells making a total of 300 completions, all of which, with the exception of five, were producers. At the present time the company is operating 42 strings of tools. The present program of the company calls for the drilling of 400 additional wells.



1 Flanges pressed from solid plate. No welds to break, open up, or prove defective. On the larger sizes, pockets are pressed in between the bolt holes, which act as braces, and produce a strong flange that will stand any strain.

2 Dresser Gaskets. It is conservative to say that under normal conditions Dresser Gaskets will last as long as the pipe. For every requirement we have a gasket of the proper composition and design. When ordering, specify the product to be handled.

All Dresser Flanges and Middle Rings, before shipment, are carefully inspected for size, workmanship and finish, and it is an unheard of occurrence to have either rejected by a customer for any defect whatsoever.

A few cents per Coupling cuts very little figure, one way or the other, on the original installation. What counts in the long run is the cost of maintenance.

Dresser Couplings will reduce your pipe line troubles to an absolute minimum, carry any pressure your pipe will stand, and insure a gas-tight joint for all time.

S. R. DRESSER MFG. CO.
BRADFORD, PENNSYLVANIA, U. S. A.

3 In the Dresser Steel Middle Ring you have an impervious ring with the grain running around the ring crosswise to the grain of the pipe, which insures against any possibility of a split. They are hammer welded and uniformly strong.

4 The center bead on the Middle Ring is rolled in the skelp at the mill, and makes a perfect stop for centering the pipe.

5 Strong Track Head Bolts are used on Dresser Couplings.

DRESSER-COUPLINGS-DOMINATE

Service Rendered Mid-Continent Oil Men

Association Activities in 1922 are Outlined by Secretary Harry H. Smith. The New Year Brings New Problems and Plans.

Upon the invitation of The Oil and Gas Journal to Harry H. Smith, General Secretary of the Mid-Continent Oil & Gas Association, to write a review of the Association's activities in the past year for editorial publication, Mr. Smith graciously responded with the following interesting account of the association's work on behalf of the men and corporations engaged in the trade:

With the southwestern oil fields producing in the neighborhood of 1,000,000 barrels of oil per day, or at a greater rate than the entire country was producing until as late as 1919, and with the business, governmental and economic affairs of the country becoming more and more voluminous and complicated, it is inevitable that a certain amount of co-operative endeavor should necessarily be organized to take care of those general matters which cannot be effectively studied, analyzed and handled by un-co-ordinated individual effort. Thus the necessity for the trade association arises.

The Mid-Continent Oil & Gas Association has been intrusted with this work by the producers of 80 per cent of the oil in the southwestern fields in so far as the same can be handled by a regional association. It was called into existence to serve the industry as a whole and to act as an intermediary between the association and the government and public for the more efficacious handling of the questions which are repeatedly presenting themselves and the solution of which conferred a benefit not only upon the industry but upon the government and the public.

Three important phases have developed in the work of the association. The first of these has to do with the interchange of information between the industry and governmental bodies. Under the leadership of President William N. Davis, the Mid-Continent Oil & Gas Association has taken an active part in the calling to the attention of the national law-makers and interpreters the essential features and peculiarities of the oil producing business, more particularly with reference to taxation. No oil producer can fail to note the contrast between the paucity of provisions recognizing the risk in the oil producing business contained in the early regulations under the Federal tax law, and more replete provisions now to be found in the revised regulations. While the industry is still heavily burdened and is constantly being subjected to new exactions, the treatment of the industry in the present Federal laws and regulations is much more intelligent and satisfactory than formerly. Among the outstanding new regulations promulgated during the year was one based upon the Revenue Acts of 1916 and 1917, permitting valuation as of March 1, 1913, of oil leases as a basis for depletion in those years in what appears to be a proper construction of those acts.

A second important phase which is now being rapidly developed consists in the policy of the association looking to the improvement of the equipment, methods and facilities of the oil producing business. It has been the subject of much comment that, although the oil industry has made tremendous strides in volume of activity and improvement in methods in refining and marketing, it has not made comparable progress in the methods and equipment for producing oil. Under the leadership of J. Edgar Pew, the association during the past year brought to a head a program for standardization and improvement of casing for deep well drilling. Finding the oil in the deeper horizons extending down to 5,000 feet, demonstrated the inadequacy of the casing of the types and strengths heretofore used. Unless we are to be disappointed, the work of the Standardization Committee will result in the saving of hundreds of thousands of dollars by the adoption of specifications which will provide proper size, strength and clearance in casing to be hereafter manufactured and used. The assistance of the American Petroleum Institute has been obtained in making the work national in scope.

Along the same line is the work of the Legal Committee, which, under the vice chairmanship of J. H. Hill, has perfected a new form of oil and gas lease for Oklahoma and Kansas, to be known as "Mid-Continent 88," and which is designed to obviate the many difficulties and ambiguities inherent in leases heretofore in use. The association has announced its intention of immediately putting on a campaign to introduce and popularize the improved lease form, in order to better secure the rights of both lessor and lessee and do away with much vexatious and expensive litigation.

The third important phase of association work is along the line of education both within and without the industry. Education within the industry to create greater harmony and co-operative accomplishment—education without the industry to inculcate in the mind of the public a better understanding of the industry's true worth in the business and economic structure of the United States and in the States. It is not believed that the people of the State of Oklahoma should view with hostility an industry which finances the State Government through the instrumentality of the gross production tax and which builds up communities and stimulates every line of business through its activity in exploring for and producing oil under conditions of great risk involving the hazard of tremendous amounts of capital.

Without attempting to enumerate all of the matters upon which the association work has touched, during the past year, it might be mentioned that information was submitted to the Ways and Means Committee of the National House of Representatives in February, along with the information submitted by other organizations, showing that it was unjust and uneconomic to attempt to finance a national bonus by singling out eight lines of business and levying a tax upon these to the exclusion of all others. That in the development of the discussion the committee itself became convinced that a tax of a cent a gallon on gasoline should not be levied by the National Government for that purpose. Among the reasons assigned was the fact that 17 States had already appropriated that field of taxation and that the Federal Government should not cripple the industry by adding another such burden.

The contention of the oil business for lower freight rates was presented to the Interior Commerce Commission early in the year, with the result that there was approximately a 10 per cent reduction by a decision rendered in May. All of the principal oil associations participated in this showing—the Mid-Continent Association confining its efforts to a request for a reduction of rates on crude oil and upon oil well material consigned to the Mid-Continent Field. Savings of from $45 to $90 per car on oil well casing and tank material were yielded by the decision.

Results are not always obtained with the speed desired. Twelve months more have been consumed in an effort to obtain a judicial construction of the pipe line transportation tax which was in effect from April, 1919, to December 31, 1921. Our contention that it does not apply to non-carrier pipe lines is now the basis of certain test cases pending in Federal Court but not yet decided. In the meantime, the Commissioner of Internal Revenue has, in the majority of cases, refrained from distraint proceedings where the taxpayer has filed proper claim for abatement, asking that collection be held up until the decision of the test case. We hope to get a decision in this matter early in the year.

The Texas-Louisiana Division has made an innovation in association work by instituting and carrying on before the A. & M. College of Texas a series of lectures by practical and technical oil men on the various phases of the oil producing and refining business, thus preparing an army of young men for efficient work in the various branches of the business.

General legislation to validate Indian titles against mere defects in the removal of restructions and the general orders of the Interior Department refusing to lend its aid to vexatious litigation over extension of Indian minor leases, without which, the oil producing business of eastern Oklahoma would have been seriously embarrassed with useless litigation were further accomplishments of the year.

It is the ambition of the present officers of the association to make it more and more efficient as an agency for constructive effort where co-operation is indispensable to success. In order to give impetus to this program, the General Executive Committee has given a vote of approval on an enlargement of the budget and for more adequate working quarters and a slightly enlarged staff.

Excluding from its membership those fly-by-night adventurers, fraudulent operators and merely stock-selling concerns, the association invites into its membership all legitimate operators in every branch of the oil business in the Mid-Continent Field, and always welcomes suggestions for activity along constructive lines.

NOTE.—While the work of Harry H. Smith, general secretary of the Mid-Continent Oil & Gas Association is so well known and so thoroughly appreciated by the membership of the association that editorial commendation may be superfluous, The Oil and Gas Journal at the outset of the new year of associational work, feels justified in saying that few trade associations are better served than the one to which Mr. Smith devotes all of his extraordinary ability and attention. His thorough knowledge of the law as it relates to oil; his wide general business capacity and his common sense are all brought to bear on the problems which daily confront the association, with the result that the machinery of the organization is kept running smoothly, and it gets over the road leading to the goal of results with ease and celerity. As the association takes on age it will, as long as it has a Harry Smith on the job, broaden the scope of its usefulness, increase its prestige and become all the more representative of the Mid-Continent oil industry.

INTERIOR SALT DOMES

The words "salt dome" bring to the memory of the oil man such famous fields as Spindletop, Sour Lake, and Humble—fields in Texas that have yielded more oil to the square mile than any other in the United States. Even though he is told that no oil has been found in a particular dome, he may not be greatly discouraged, for he can cite a number of such domes that were drilled repeatedly with adverse results, until finally a lucky driller reached the right depth at the right spot, and was rewarded by a new gusher pool. Repetitions of such experiences have inspired many geologists and operators to maintain strongly that oil in commercial quantity may yet be found in every salt dome in Texas.

Opposing these optimists, however, are a number of geologists who refuse to find any more magic in the words "salt dome" than in the word "anticline" and it has been repeatedly shown, at great expense, that many anticlines, even in productive oil regions, can no more produce oil than a derrick can spout branches and yield fruit.

Among the salt domes that have thus far failed to reward the oil man for his drilling are the so-called "interior domes," those that lie far inland from the coast. Six or more of these domes in Texas and seven or more in Louisiana, though they have not been extensively drilled, have yielded to such prospecting as has been done on them no notable showings of oil or gas. From one, however, the Keechi Dome, in Anderson County, Texas, a little heavy oil has been obtained.

Announcement

N.S.CO.

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The new National Wire Line Pumping Outfit is now ready for delivery at all stores

THE
NATIONAL SUPPLY
COMPANIES

Federal Income Tax and the Oil Industry

"Depletion" is Defined and Discussed in the Third Article on the General Subject. Its Effect on Royalty Owners.

By Staff of The Jas. I. Tucker Co., Consulting and Appraisal Engineers, Tradesmens Bank Building, Oklahoma City, Oklahoma.

(Note.—Quoted material is from the Statute, Regulations, and Oil and Gas Manual.)

It has been emphasized in previous articles that Federal income taxes are levied on net income. To understand the relation of depletion of oil or gas properties to taxes it must be recognized that these properties are capital assets having a genuine market value. The proceeds of the sale of production therefrom is in the nature of a return of capital and is therefore not all taxable income. "Depletion" means "the loss sustained through the progressive removal of natural resources." Thus when oil or gas is produced the supply of this natural resource is being exhausted, and from a business viewpoint the asset is being "depleted."

Depletion applies to all natural resources such as coal, oil, gas, iron ore, timber, etc., in their natural states. This diminution in value is to be clearly distinguished from depreciation. Depletion is an exhaustion of the asset by production or consumption, while depreciation is a gradual lessening in value because of its continued use, the action of the elements, or by reason of an advancement of the art commercially.

Statutory provision is made for a "reasonable" deduction on account of depletion before computing net income. Because the allowance for depletion, like the depreciation allowance, is a return of capital, and a deduction from gross income before taxable net income can be computed, a suitably sustained claim for depletion allowance has the same effect from the standpoint of taxes to be paid, as the receipt of that much tax-free income.

In as much as the entire reserve is ultimately depleted, the Statute provides that this deduction must be equitably apportioned between the lessor and lessee. In the case of an operating fee owner, he will, of course, take credit for the entire allowance.

It is essential that an accurate estimate be made of the oil or gas reserves of a given property, and the capital sum subject to depletion determined. The Regulations require that ledger accounts be kept for each property, showing the capital sum and estimated reserves. Adjustments must be made from time to time on account of depletion sustained, additional reserves discovered, and allowable capital additions. When the aggregate of depletion allowances with respect to a specific property equals the capital sum, so set up, no additional deductions may be taken from gross income. Under the 1921 law, in the case of discovery, the deduction from gross income on account of depletion in any year cannot exceed the net income from the property. This phase of the subject will be discussed later.

Capital Sum Recoverable

The capital sum recoverable through an aggregate of depletion allowances is determined as follows:

First. Proven properties acquired prior to March 1, 1913. The capital sum is based on cost or fair market value as of March 1, 1913.

Second. Proven property acquired after March 1, 1913, as the result of purchase. The capital sum in this case is the cost.

Third. Proven property acquired after March 1, 1913, as the result of gift, devise, bequest or inheritance. The capital sum is the fair market value as of the date of acquisition.

Fourth. Properties clearly not proven on the date of acquisition. In this case the capital sum is the discovery value.

In all of the above cases, adjustments of capital sum may be made by reason of additional discoveries, or allowable capital expenditures and depletion sustained.

Under the Regulations there must be made an estimate of the total recoverable reserves in any case where depletion is claimed. The fair market value in the above cases may be determined by comparison with similar properties as of the basic date or by appraisal. Certain methods of appraisal will be discussed later in this article. In any case, full information in support of the method used in establishing the capital sum must be presented for the commissioner's approval.

Discovery

The right to use the "discovery value basis" to determine the capital sum recoverable through depletion is predicated upon certain conditions precedent, and "is allowed only to the party or parties in possession at the time of the discovery and not to subsequent purchasers."

The conditions above mentioned are:

1. The property, or interest therein, must have been acquired before it became part of a "proven area."

"A producing well shall be presumed to prove that portion of a given sand, zone, or reservoir which is included in an area of 160 acres of land, regardless of private boundaries. The center of such square shall be the mouth of the well and the sides of such area shall run north and south, east and west." In other words, if a producing well in a given sand was located within 1,320 feet of the boundaries of a taxpayer's tract on the date of acquisition, the tract (in so far as the known sand was concerned), was in whole or in part a proven area, and no discovery could be claimed on the proven portion. If, however, oil was later produced from new sands on the taxpayer's tract (sands which were not known to exist on the date of acquisition), discovery could be claimed thereon if the other prescribed conditions were present.

2. The well, on account of which discovery is claimed, must disclose the presence of oil or gas in sufficient quantities to justify commercial exploitation.

3 The fair market value of the property on the date of discovery or within 30 days thereafter must have become materially disproportionate to the cost.

4. Discovery cannot be claimed, "If such tract or lease lies within a compact area which is immediately surrounded by proven land, and the geological structural conditions on or under the land so enclosed may reasonably warrant the belief that the oil or gas of the proven area extends thereunder." (This circumstance seldom occurs except in cases such as the Osage Nation, where the Government sells proven leases and the cost would, in all probability, be the basis for the computation of depletion allowances).

It should be borne in mind that under proper conditions a taxpayer may claim discovery in more than one sand on a given tract, or even in a given well.

Proof of Discovery

Before a claim for depletion based on discovery can be allowed, the taxpayer must prove to the satisfaction of the commissioner that he is entitled thereto. In order to do this he is required, among other things, to fill out and submit Form "O"—the questionnaire prepared by the department for the presentation of the appropriate data and evidence where depletion of oil and gas properties is claimed.

In addition to submitting detailed answers to specific questions relative to dates and manner of acquisition; known sands, etc., the taxpayer must, among other things, furnish maps, sworn copies of production records; certified copies of well logs; estimates of reserves and how such reserves were determined, and "a full explanation of the method of determining the value on the date of discovery or within 30 days thereafter, supported by evidence of the fairness of the value." If the statements made are not complete, comprehensive and to the satisfaction of the commissioner, the report may be rejected and the claim for depletion disallowed.

Procedure

The taxpayer may file his Form "O" with his return at the office of the local collector, or forward it direct to the Bureau of Natural Resources at Washington, D. C. This is the bureau through which the Form "O" and appraisal report (or resume of other method of valuation) must pass for final inspection and approval. If the claim for depletion allowance is not sustained, but is disallowed, in whole or in part, the taxpayer is granted the opportunity of a conference with the officials in charge, either in person or through his duly authorized agent or attorney. At such conference the details of the case are discussed, and if the taxpayer still feels aggrieved thereafter, administrative provisions have been made for taking the case further. However, this prerogative is rarely exercised in cases involving valuation, primarily because the attitude of the department is to always be fair to the taxpayer.

Amended Returns

If, at the time of filing his original return, the taxpayer failed to claim his just deductions on account of depletion or otherwise, he may file an amended return if his case has not been finally closed, or the statute of limitations has not operated against him. Amended returns may be accompanied by claims for abatement, credit, or refund, as the case may be, supported by competent proof (such as Form "O," appraisal reports, etc.) of the fairness of such claims.

Allowable Depletion Deductions

Under the 1913 law, depletion was limited to 5 per cent of the gross value of the output at the mouth of the well, regardless of the amount of capital invested. The 1916 law, practically reenacted in 1917, opened the way for full and rational depletion deductions based on the capital invested and the estimated "reserves," or total ultimate production.

Under the 1918 law, the full amount of depletion based on "discovery valuation" was first made an allowable deduction from gross income. It should be noted that where a discovery was made prior to 1918 the full amount of depletion sustained, based on the discovery value and the total expected production, must have been charged off on the ledger accounts, even though for any year prior to 1918 the full amount was not an allowable deduction from gross income.

Under the 1921 law, the depletion allowance deductible, based on a discovery valuation, was for any year, limited to the net income from the specific property. Also, in computing a "net loss" (as defined in the 1921 law), the depletion sustained, if based on a discovery valuation, must be disregarded.

Sale of Discovery Properties

The 1918 law introduced a provision to the effect that, if a sale of producing properties is made by the person or persons legitimately entitled to discovery thereon, the surtax applicable to the transaction is limited to 20 per cent of the sale price of such property. For the year 1922 and thereafter this limitation is reduced to 16 per cent. However, proof that the discovery is bona fide, must be submitted.

Estimation of Oil Reserves

In all cases where depletion is claimed, an estimate of the recoverable reserves of oil or gas must be made, whether the allowance is based on cost, fair market value as of March 1, 1913, discovery, or otherwise. To quote the Oil and Gas Manual: "The estimate of probable recoverable oil in the ground is fundamentally necessary if a reasonable deduction for depletion is to be calculated, and, while it may be impossible to determine exactly the future production of a well or tract, it has been found possible to predict future production within a comparatively narrow limit of error."

There are available methods of estimating the underground reserves of oil.

"The simplest and safest basis upon which to form an estimate of future production of wells or properties is by the projection of the record of past production of the wells or properties themselves." The past production of a given well or property is the basis for the estimation of the future production in the "production decline curve" method, hence it is the one discussed here. Other methods have their merit, particularly in entirely new fields or sands, but for general applicability and use it appears to be the best, particularly from the standpoint of accurate results and where the records are reasonably complete.

Many engineers and technologists, in Government bureaus and elsewhere, have in the past few years intensively studied the decline in production of oil wells and properties. The results of these investigations have been published in the Treasury Department's Oil and Gas Manual to aid producers in estimating their probable total future production.

A principal result of the investigations above mentioned is the demostration that the "production decline curves" of individual wells or properties in many cases approximate the shape of a hyperbola. In as much as a hyperbola can be plotted on cross-section paper, graduated to a logarithmic scale, in the form of a straight line, this has been found to be the most practical method of projecting or extending the curve. After the actual past production of a given well or property has thus been correctly plotted, the resulting straight line may be extrapolated from the point of last known production to an assumed "economic limit" (the point at which the operation of the particular property becomes no longer profitable). Proper reading of the curve so drawn will enable the estimator to predict with reasonable assurance not only the total future production of the well or property in question, but the period of time required for such production.

If the tract under discussion has not been entirely drilled at the time the appraisal is made it becomes necessary to estimate the reserves or expected production of the proven but undrilled portion.

(Continued on page 102)

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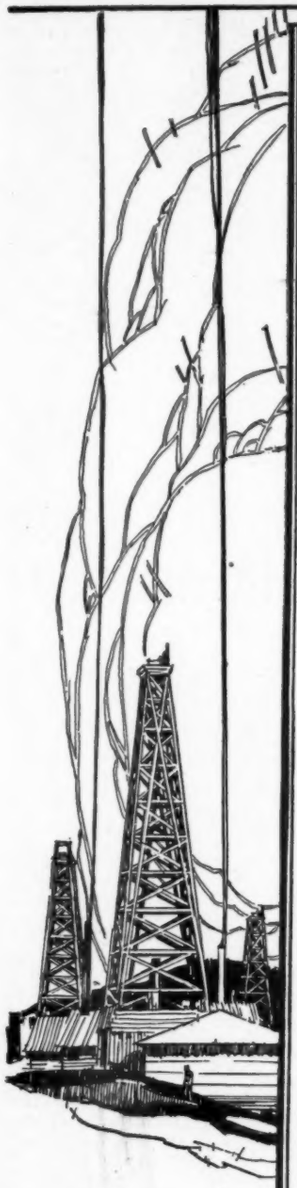

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Oklahoma-Kansas Oil Fields

By CHARLES W. WOOD

Kewanee Oil & Gas Company brought in 1,440-barrel producer in old district north of Morris, Okmulgee County, Oklahoma. Deep test in Burbank Field failed to get production indicating but one sand there. Scott & Levy's well in Okfuskee County flowing 600 barrels daily. Prairie Oil & Gas Company and Wilhoit's second well in new pool, in Hughes County, started at 40 barrels.

TULSA, Okla., Jan. 2.

Featuring a dull week in Oklahoma and Kansas, the Kewanee Oil & Gas Co. got a 1,440-bbl. well in the old district north of Morris, Okmulgee County, which was unexpected; Scott & Levy's well in Okfuskee County increased its flow to 600 bbls. a day; the Twin State Oil Co. failed to pick up pay in a deep test to the Mississippi lime at Burbank, and there was a small showing of oil in deep sand in a Seminole County wildcat. The latter well is Templeman Oil Corporation's No. 1 Harrison, SE cor. SW SW, Section 32-9-8, a little over 2 miles north of Wewoka. The sand was topped at 3,490 feet, and after finding a show, the well was shut down to run the 5-inch casing before drilling into the sand.

The big well in Okmulgee County belongs to the Kewanee Oil & Gas Co. and is located on the Wright farm, SW cor NE SW, Section 22-14-14. Gas sand was topped at 1,845 feet. After starting with a production of gas at the rate of 10,000,000 feet a day the well drilled itself in and was at last reports flowing at the rate of 60 bbls. an hour. As the longevity of production in this district is very uncertain, and it is spotted with dry holes, the real value of the well cannot be ascertained at this time.

Scott & Levy's well, located on the Daniels farm, Tiger Flats district, CNL NW SE, Section 4-12-11, was reported as a gas well with a show of oil. Later the well developed an oil flow and was variously estimated as good for between 600 and 1,000 bbls. a day at the start. It appears that the former estimate is about correct. Sand was from 2,666 to 2,668 feet. The rig was lost by fire after being struck by lightning during a unique winter thunderstorm, that is one of Oklahoma's specialties, and the well may be drilled deeper into the pay when a new rig is completed.

Deep Test a Failure

The first deep test made in the Burbank Field, Osage County, has failed to unearth any production from the deeper horizons in the spectacular pool, and it strengthens the prevailing belief that Burbank will be one of the few single-sand producing areas in Oklahoma of major importance. The deep test was made by the Twin State Oil Co. in No. 3, NE cor. NW, Section 36-27-5, which has now been abandoned at a total depth of 3,495 feet. The top of the Mississippi lime was found at 3,105 feet, and an unproductive sand from 3,464-72 feet. As the well was not a producer in the regular Burbank pay it is now listed as a dry hole.

Further reports on Grimes-Gillespie's well in the Bird Creek district, Osage County, NW cor. SW, Section 20-21-12, show it to be producing oil of 46 gravity and at the rate of 180 bbls. a day from the second break in the Mississippi lime, topped at 2,022 feet. As this district is one of the older producing districts of Oklahoma, the well has caused more than ordinary interest. It was originally a gas well and drilled itself in naturally after producing gas for more than seven months.

The several tests drilling in Kay County, some of which are for the deepest horizons considered possible of production in the area, causing recently a little more interest than usual in that territory, are in several cases nearing important depths. Northwest of the Burbank Field on the Thompson farm, C NE SE SW, Section 15-27-5, the Sapulpa Refining Co. was drilling below 2,200 feet. The Marland Refining Co. has also started a test in this area and was drilling below 400 feet on the Soderstrom farm, C SE SE NE, Section 33-27-5.

Other Important Tests

Two more tests are at depths that make the operations look discouraging. Between the Blackwell and Ponca Pools, the Globe Oil & Gas Co. was shut down at 3,655 feet on the Ebersole farm, C NE NE SW, Section 34-28-2e. North of the Mervin Pool and southwest of Burbank, Marland Refining Co.'s No. 1 Chop was drilling in sand at 3,702 feet with no oil showing. It is located in the C SE SE SW, Section 8-28-3e.

Near Bressie, southwest of Burbank and southeast of the Ponca district, Comar Oil Co.'s interesting test on the Buffalo farm, C NW NW SW, Section 12-24-3e, was running the 6-inch casing at 3,714 feet, and will be drilled for deeper pay. Southwest of production in the Ponca Pool, the Marland Refining Co. was drilling at 4,144 feet on the Bear farm, C NW SE, Section 19-25-2e. The deep test being drilled in the Blackwell area by the Cozart Oil Co. on the Pratt farm, No. 8, CNL NW SW SW, Section 31-29-1e, was drilling at 3,820 feet.

Test operations drilling in wildcat territory north of the Tonkawa district, the northern extension of which is in the same county, have as yet failed to extend the productive area more than a half mile north of the Noble County line, which was done last week, there being nothing but the shallower sand gas production. This was found by Harris & Haun's No. 3 Lewis, 12-26-1w, C W half SW SW, which was completed with 2,000,000 feet of gas at 710-20 feet. The Blackwell Oil & Gas Co.'s deep test on the Howell farm, NE cor. SW, Section 24-26-1w, was fishing for collapsed 5-inch casing at 4,030 feet. The Besdor Oil & Gas Co.'s test on the Peffenberger farm, NW cor. SW, Section 29-26-1w, was dry and abandoned at 3,505 feet. Ostot and others' were shut down at 3,234 feet in the White No. 1, SW cor. NE, Section 6-26-1w.

A new test will be drilled by Twitchel, Moore and others on the Slocum farm, C, NW NW NW, Section 16-27-1w, where the location has been staked.

Burbank

The Burbank Field, Osage County, shows another decline in production for the week ending December 27, as compared to the week before. The average for the week was 84,641 bbls. from 773 wells. The Phillips Petroleum Co. and the Skelly Oil Co. joint interests still continue far in the lead of all other companies operating in the pool in production, the daily average for the two companies being 25,978 bbls. The Gypsy Oil Co. is second with 22,951 bbls. The Sinclair Oil & Gas Co. continues third with 8,021 bbls., the big production of these three companies all coming from north edge leases, many of the wells producing naturally at a high rate.

The production by companies for the week, the figures being the daily average for each, are as follows:

Company—	No. of Wells	Prod. Bbls.
Carter Oil Co.	121	6,357
Cosden Oil & Gas Co.	45	2,636
Comar Oil Co.	3	206
Devonian Oil Co.	16	805
Friedman	11	617
Gardner Petroleum Co.	18	2,180
Gypsy Oil Co.	116	22,951
Kewanee Oil & Gas Co.	11	421
Laurel Oil & Gas Co.	12	1,067
Midland Oil Co.	5	201
W. Phillips Co.	9	1,567
Phillips Pet. and Skelly Oil Co.	85	25,978
Phillips Petroleum Co.	1	160
Prairie Oil & Gas Co.	90	5,021
Producers & Refiners Corp.	22	763
Roxana Pet. Co. and Marland Refining Co.	51	2,302
Clint Moore Co.	23	1,159
Sinclair Oil & Gas Co.	95	8,031
Tidal Osage Oil Co.	37	2,217
Twin States Oil Co.	2	102
Total	773	84,641

Okmulgee's District

Charles I. O'Neill, of the Okmulgee District Oil & Gas Association, Okmulgee, has compiled some interesting data on that district and its prospects for the new year. The association's data covers not only Okmulgee County, but includes Okfuskee, Hughes, McIntosh and Seminole Counties, in which wildcat developments are being extensively forwarded and promise interesting results in 1923. Mr. O'Neill says:

"Average initial daily production of wells in the Okmulgee district has increased 200 per cent in the past two years and 1922 set new high records in total oil production in the district and in new production, according to statistics for the past year that are now available. The average first day's production of new wells completed in this district in the first 11 months of the past year was 367 bbls., as compared with an average of 199 bbls. per well in the year 1921 and 132 bbls. per well in 1920.

"With the gross production of the district for the month of December estimated at 1,110,000 bbls. and the figures for the first 11 months of the year complete, the Okmulgee district produced 18,399,287 bbls. of oil in 1922. The previous high record production for the district was 17,401,316 bbls. in 1920. Total production in the district in the five years ending December 31, 1922, was 69,109,038 bbls.

"New production in the district in the first 11 months of 1922 was 219,203 bbls. from 598 wells. This is 20 per cent of the total new production in Oklahoma in these months and 6 per cent of the new production in all of the fields east of California."

Creek County

In Creek County, the Duquesne Oil Co. had a rig on the ground for No. 1 Walker, NE cor. NW, Section 23-17-8. A rig is up for Hayner & Strovelle's No. 1 Mosquito, SE cor. SW SE, Section 19-17-9. The Goodwill Oil & Gas Co. drilled into a hole full of water at 2,600 feet in No. 1 Pahcahney, CSL SW NE, Section 27-18-11. In the Slick district, Enfisco Oil Co.'s No. 2 Gooden, C SE SE NW, Section 13-15-10, was producing 250 bbls. a day of cut oil from sand at 3,044-59 feet. Phillips Petroleum Co.'s No. 10 Trent, SW cor. SE SE, Section 16-15-10, sand at 2,687-2,721 feet is a 15-bbl. well.

Lynch, Kimberley and others' deep test on the Harry farm, NW cor. SE, Section 33-15-10, is a failure in the Wilcox sand at 3,590 feet and will be plugged back to the Dutcher sand at 2,647-51 feet. Bartlett and others got a hole full of water in sand at 2,570-85 feet in No. 2 King, SW cor. Section 17-18-9, and was shut down for orders. McMann Oil Co.'s No. 2 Sherman, NW cor. Section 30-18-9, is dry and abandoned at 3,272 feet.

In the Bristow district, south of Depew, the Pulaski Oil Co. shot No. 1 Robertson, NE cor. SE SE, Section 8-15-8, with 40 quarts in an effort to make it a producer. It was being cleaned out after the shot. Roland Oil Co.'s No. 1 Tobarn, C NE NW NW, Section 11-15-8, is dry and abandoned at 2,168 feet. The Eastern Oil Co. has shut down dry at 3,266-68 feet in No. 1 Wilson, NW cor. Section 17-15-8.

The Texolean Oil Co. shot No. 1 Soldier, NW cor. NE SE, Section 5-16-8, with 20 quarts in sand at 2,929-49 feet and has a show for about 25 bbls a day. In the Continental Pool district the Roland Oil Co. has completed a 75-bbl. producer in No. 1 Williams, C NE NE SE, Section 15-16-9, sand at 2,993-95 feet. T. B. Slick's No. 8 fee, SE cor. NE SE, Section 15-16-9, is a 50-bbl. completion from sand at 2,570-90 feet. Prairie Oil & Gas Co.'s No. 11 Shoals, CWL NW NW SE, Section 33-16-9, top of the sand at 2,981 feet, was flowing at the rate of 100 bbls. a day. The company's No. 1 Newman, NE cor. SE SW NE, Section 35-16-9, was completed in the Dutcher sand as a 60-bbl. well with 5,000,000 feet of gas, pay at 2,973-2,986 feet.

The Texas Co. has a 15-bbl. completion in No. 1 Brown, SW cor. SE SW, Section 1-14-8, after a shot in sand at 2,414-64 feet. In the Billingslea-Buell Pool, Pulaski Oil Co.'s No. 14 Fife, SE cor. NW SE, Section 15-14-8, Dutcher sand at 3,239-49 feet, is a 180-bbl. completion. Skelly Oil Co. and Phillips Petroleum Co.'s No. 4 Watson, NW cor. SW SW, Section 15-14-8, is dry and abandoned at 3,270 feet. Phillips Petroleum Co.'s No. 1 Beaver, NW cor. SE, Section 35-14-8, is a 10-bbl. well after the shot in sand at 2,437-81 feet.

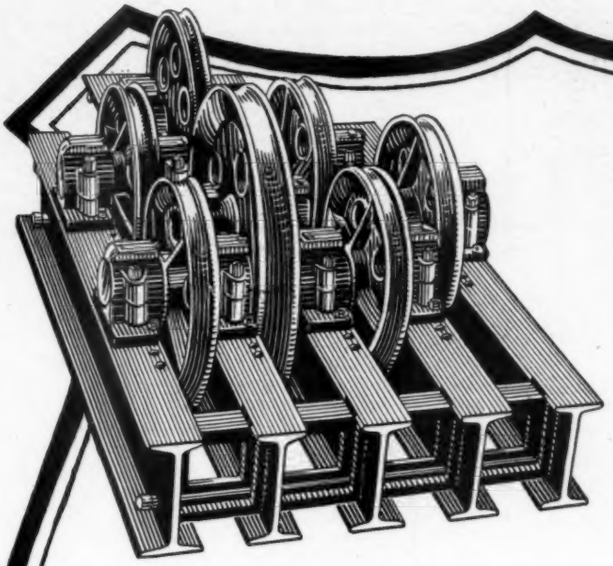
Osage County

In Osage County, the rig was on the ground for Peters and others' No. 5, C E half NE, Section 23-25-9. A rig was also in for Peters and others' No. 1, CEL SE NW, Section 28-24-10. At Burbank, Carter Oil Co.'s second well in Section 12-26-5, CNL NW NE NW, does not look much better than the first, which is a small well. No. 2 found the sand at 2,843-2,907 feet, where 100 feet of oil rose in the hole. It was given a shot with 120 quarts, after which it was swabbing 50 bbls. of oil and water. Carter Oil Co.'s No. 14, C SE NW NE, Section 8-26-6, oil sand at 2,885-2,925 feet, is a 130-bbl. well after the shot. The Evidence Oil Co. got a hole full of water in sand at 2,085 feet in No. 1, SW cor. NE, Section 16-23-10.

Lawrence Oil Co.'s No. 2, CEL NE, Section 2-21-11, was shot in the second break in the lime and is good for 10 bbls. a day. The sand was at 2,296-2-319 feet. Howard, Duffield & Berlin's No. 4, CEL NE SE, Section 25-21-11, Burgess sand at 1,559-1,573 feet, was making 40 bbls. a day on the pump. Bransteter and others' No. 1, NE cor. SE, Section 16-21-12, Burgess sand at 1,599-1,623 feet, is estimated good for about 50 bbls. a day.

George Labadie passed through dry sand at 1,007-1,050 feet in No. 1, SE cor. NE, Section 19-29-11. The Western American Oil Co. has a 50-bbl. completion in No. 5, CWL, NE, Section 28-24-10, Cleveland sand at 1,270-86 feet. Winona Oil Co.'s No. 2, NE cor. SE, Section 33-24-10, is a 20-bbl. well in the Cleveland sand at 1,334-55 feet after the shot. The Twin States Oil Co. completed a rig for No. 1, CWL NE, Section 13-23-8.

In the Burbank district, Tidal Osage Oil Co.'s No. 11, C SE SW SW, Section 6-26-6, sand at 2,852 feet, was making 90 bbls. on the swab. Carter Oil Co.'s No.



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14, C SE NW NE, Section 8-26-6, was completed as a 130-bbl. well. Cosden Oil & Gas Co.'s No. 13, C SW NE NE, Section 17-26-6, sand at 2,890-2,951 feet, was completed after a shot as a 205-bbl. well.

Phillips Petroleum Co. and Skelly Oil Co.'s No. 5, C NW SW SW, Section 19-27-6, sand at 2,892-2,970 feet, was flowing naturally at the rate of 1,000 bbls. a day. No. 6, C NE SW SW, Section 19-27-6, top of the sand at 2,903 feet and fishing for lost tools, was still flowing at the rate of 2,000 bbls., naturally. Five other wells on this lease were still flowing naturally. No. 7, C NW SE SW, was flowing at the rate of 950 bbls; No. 8, C NE SE SW, was flowing at the rate of 900 bbls; No. 9, C SW NW SW, was making 1,000 bbls.; No. 12, C SE NE SW, was flowing at the rate of 1 200 bbls., and No. 14, C NE NW SW, was flowing at the rate of 2,500 bbls.

In the same section, the Gypsy Oil Co.'s No. 7, C, NE SW SE, was making 750 bbls. a day naturally. The company's No. 5, NE cor. SE, Section 24-27-5, came in at the rate of 135 bbls. an hour from sand at 2,905 feet without being shot, and No. 8, C NW SE SE, is a 1,000-bbl. completion from sand at 2,919-86 feet after the shot. No. 9, C NE SW SE, was still flowing at the rate of 900 bbls. a day naturally, and No. 11, also a natural producing well, was flowing at the rate of 1,800 bbls. a day, sand 2,910-80 feet.

Marland Refining Co.'s No. 16, NW cor. NE NE NW, Section 36-23-7, sand at 2,874,78 feet, has been completed as a 10-bbl. well. Clover Oil Co.'s No. 19, a Bartlesville sand well in sand at 1,412-40 feet, was shot and is a 12-bbl. producer. McKinney and others' have a 16,000,000-foot gas well at 1,765-72 feet in No. 2, CWL NW, Section 5-21-11, Bartlesville sand.

Okmulgee County

In the Beggs district, Okmulgee County, the U. S. Cities Co. had a 5-bbl. show in No. 5 Hill, SE cor. NE SE, Section 22-15-11, sand at 1,764-94 feet. It will be shot. La Beene was cleaning out after a shot in sand at 2,096-2-132 feet in No. 3 Hill, CEL SE SE, Section 22-15-11. Donafred and others' No. 2 King, NE cor. Section 27-15-11, is dry and abandoned at 2,408 feet. Misner & Steele were spudding No. 2 Gooden, NE cor. SE SE, Section 32-15-11. Wheeler and others' No. 1 Jackson, NE cor. SE SE, Section 33-15-12, looks good for about 190 bbls. a day after a shot in sand at 2,125-40 feet. A rig was on the ground for Oklahoma Natural Gas Co.'s No. 1 Babbit, C SE SE SW, Section 34-15-12.

Simons and others' No. 9 Unallotted, C SE SW NE, Section 12-14-11, had 1,500 feet of oil in the hole from sand at 2,820-60 feet, and will be put on the pump. It is a twin location. West of Beggs, Rockwell Oil Co.'s No. 1 Grayson, an old well in the Dutcher sand, was drilled to the Wilcox sand at 2,813-40 feet and shut down with a hole full of water. It is located in the SW cor. NW SW, Section 1-15-11. F. Hersman and others were drilling at 685 feet in No. 2 Tarpelechee, CEL NE SE, Section 10-13-13. Albert Shelton has completed a rig for No. 1-A Alexander, SE cor. NE, Section 11-13-13. Chief Drilling Co. was drilling at 1,918 feet in No. 1 Davison, NW cor. NE SE, Section 26-13-13. R. G. Rapp's No. 3 Lee, SE cor. NW NE, Section 30-13-13, is dry and abandoned at 3,020 feet.

Kingwood Oil Co. got a hole full of water in No. 3 Unallotted, C NE SE, Section 33-13-13, sand at 2,870-2,960 feet, and was drilling at 3,110 feet. F. Havel had a 10-bbl. show of oil in sand at 1,640-1,695 feet, set the 6-inch casing at 1,732 feet, and was drilling deeper. A rig was on the ground for McMaster's No. 4 Tree, C NW NE, Section 34-13-14. Alkire Oil Co.'s No. 1 Seviers, C E half NW NE, Section 11-13-15, was drilling at 730 feet. Blake Brothers' No. 1-A Segro, SW cor. SE SW, Section 17-13-15, was drilling at 125 feet. Jordan, Ashley and others had the rig and tools in for No. 4 Sampson, SW cor. SE SW, Section 19-13-15. The General Investment Co. was shut down after getting a 25-bbl. show from sand at 2,887-96 feet in No. 1-A Sampson, SE cor. SW NW, Section 30-13-15.

Tulsa County

In Tulsa County, Holmes and others' No. 1 Hickory, SW cor. NW, Section 23-19-10, had the rig completed. McAdoo and others' No. 1-A McIntosh, SE cor. SW SE, Section 34-19-14, is dry and abandoned at 1,464 feet.

In the Turkey Mountain district, West and others' No. 2-A Edwards, CWL SW SW, Section 1-18-12, is completed in sand at 1,457-73 feet after a shot and making 10 bbls. a day. Prairie Oil & Gas Co.'s No. 6 Ishmael, C NW NE, Section 24-18-12, is dry and abandoned at 1,970 feet. Willmot and others were underreaming with a hole full of water at 2,012 feet in No. 1 Robinson, SW cor. Section 14-19-10. Minsball and others were rigging up a machine for No. 1 McKellop, SW cor. Section 23-19-14. Block and others' No. 1 Allen, SW cor. SE Section 10-17-13, was shut down at 2,250 feet. R. C. McCullough and others' No. 1 Williams, SW cor. SE SE, Section 25-17-13, total depth 1,550 feet, was shot and looks good for 30 bbls. a day.

McIntosh County

In McIntosh County, W. B. Pine's No. 1 Byrd, SE cor. NE, Section 20-12-14, was spudding. The same owner was drilling at 150 feet in No. 2 Griffin, SW cor. SE SW, Section 28-12-14. O'Dell & Young found top of the sand at 2,484 feet in No. 1 Shoals, SE cor. NW, Section 25-12-15, and at two feet in had a show of gas. It was shut down for a sand pump. Clifton, Terral & Bynum made a location for No. 1 McNally, C SW NE, Section 29-12-15. McLain and others' No. 1 Tiger, SE cor. NE SE, Section 9-11-15, was dry and abandoned at 2,630 feet. R. C. Drilling Co. and others were building a rig for No. 1 Byrd, SE cor. SW SW, Section 19-12-14. McCree Oil Corporation got a hole full of water from sand at 3,083 feet in No. 1 Broadnay, NW cor. SW, Section 4-11-15. It was shut down and may be abandoned.

Okfuskee County

In Okfuskee County, Floyd Howarth has made a location for No. 1 Johnson, NW cor. NE NE, Section 17-12-8. The Minnehoma Oil Co. had a rig on the ground for No. 1 Hern, NW cor. NE SW, Section 16-10-11.

Pawnee County

In Pawnee County, Stone & Braden's No. 2 Jackson, NE cor. SE, Section 16-20-6, was being rigged up to drill. Prairie Oil & Gas Co.'s No. 2 Ham, NW cor. Section 15-20-7, has 4,000,000 feet of gas from sand at 2,377-2,411 feet. Fisher and others' No. S Townsite, CSL SW SE, Section 19-20-8, was drilling at 215 feet.

Muskogee County

In Muskogee County, Savoy Oil Co.'s No. 2-A Colbert, CEL SE NW, Section 4-16-15, sand at 1,047-69 feet, was shot and started at 225 bbls.

Stephens County

In Stephens County, the Pierce Oil Co. was moving in a machine for No. 1, SW cor. Section 31-2n-4w. Watt and others had a rotary rig up for No. 1 Robberson, NW cor. NE, Section 32-2n-4w.

Another in Hughes County

The second well in the new pool in Hughes County opened by the Prairie Oil & Gas Co. and Wilhoit was being drilled in and made five flows in four hours, averaging 40 bbls. an hour. Sand was topped at 3,420 feet, derrick measurement. This well is located on the Tom Hilly farm, a little north and west of the original well(and is in the SE cor. NW, Section 5-9-10. The Indiahoma Refining Co.'s test in the SE cor. SW NE, same section, was drilling with oil showing at 3,200 feet. The Independent Oil & Gas Co. was drilling about 100 feet above the pay horizon in No. 1 Thomas, NW cor. NE, Section 8-9-10.

Cowley County, Kansas

In Cowley County, Kansas, Mississippi Valley Oil Co.'s No. 1 Hanlon, SW cor. NW SE, Section 26-30-4, was shut down at 3,280 feet and will be plugged back to sand at 2,863 fect. The Arkansas Fuel Oil Co. completed a rig for No. 5 Clark, CEL NE SE NW, Section 6-31-4. The Peters Oil Co. had a rig up for No. 1 Christopher, NE cor. SW, Section 10-31-6. The Empire Gas & Fuel Co. mudded off 2,000,000 feet of gas at 2,042-44 feet in No. 1 McCormick, NW cor. SE, Section 13-31-7. The company also mudded off 6,000,000 feet of gas from sand at 2,055-65 feet in No. 1 Kielhorn, NE cor. SW, Section 13-31-7. The Southwestern Petroleum Co. has made a location for No. 1 Shields, SW cor. NW, Section 20-32-6. Benedum & Trees had a small show of oil from sand at 2,558-62 feet, but were drilling at 2,600 feet in No. 1 Esch, SW cor. Section 33-33-6. Shawver & Sutter had a 7-bbl. show from 2,829 feet in No. 1 Radcliffe, SE cor. Section 5-33-7.

Greewood and Woodson, Kansas

In Greenwood County, Kansas, the Tidal Oil Co. compieted a rig for No. 1 Seely, C SW NW NE, Section 5-23-11. The White Eagle Oil Co. had a rig and tools in for No. 4 Seely, C NE SE NW, Section 5-23-11. Rhodes & Abel's No. 1 Bangs, NE cor. Section 18-22-10, had timbers on the ground. The Phillips Petroleum Co. was building a rig for No. 1 Edwards, C SW SW SE, Section 13-23-10. The Mid Kansas Oil Co. was building a rig for No. 6 Allen, C SE NE NE, Section 23-23-10.

North-Central Texas Field

By DAN F. DUGAN

Sinclair Oil Company's No. 2 Kisinger, in Herron City district, is flowing 700 barrels at 2,550 feet. Pigg and others' No. 3 Hirschi, north Wichita County, is flowing 500 barrels. Fidelity Oil & Gas Company's No. 1 Gardenshire, Pioneer Pool, Eastland County, flowing by heads at rate of 20 barrels an hour. Mitchell County test flowing wild, gas and salt water for second time.

FORT WORTH, Tex., Jan. 1.

Pigg and others' No. 3 Hirschi, north Wichita County, which was reported last week as being east of the No. 2 Hirschi gusher is located 700 feet west, and after cleaning out the mud in the hole is credited as flowing 500 bbls. The producing pay was picked up at 1,860 feet, and was drilled to a total depth of 1,884 feet. Two other tests are on the sand, the Bob Waggoner No. 1 Foster-Allen, Block 833, is drilling in with a hole full of fluid and from its present showing will be numbered among the producers by the end of the week.

Northwest of the No. 2 Hirschi, the discovery well, Texhoma Oil & Refining Co.'s No. 1 Hrischi is in a good looking sand at 1,804 to 1,819 feet and showing oil. The well is being standardized and is expected to be drilled in during the week. South of Bob Waggoner's test in Block 833, Moore and others after reaching the sand, lost the casing seat and are resetting before drilling deeper. The Sun Co.'s No. 1 Hirschi to the west is drilling at 1,500 feet.

The logs of all of the above wells are showing practically the same formations as was encountered in the No. 2 Hirschi.

Development work in Wichita County showed a slight falling off during the last week, due principally to shut downs for the holiday season.

In the Electra district a number of late completions were reported, the largest being McDaniel and others' No. 5 Douglas, for 200 bbls. at 1,950 feet. Two other fair producers are John O'Neil's No. 7 Waggoner, good for 150 bbls at 1,930 feet, and Wichita Petroleum Co.'s No. 66 Burnett, 150 bbls. at 1,936 feet.

Drilling development in Young County is showing an increased activity, with the work gradually moving in the direction of Graham, the nearest test to the town being a location selected this past week by Whitehead and others 1 mile east of the courthouse. Sinclair Oil Co.'s No. 2 Kisinger in the Herron City district, which was a partial completion last week showing better than 800 bbls., is now flowing around 700 bbls. natural at 2,550 feet. This well is of special importance by reason of its being located north of the Brazos River. Preparation is being made to drill several offsets right after the first of the year.

Of especial interest is the operation of The Texas Co. south of Graham, which has scratched the lime in No. 2 Jake Jones at 3,825 feet. The well is now flowing and when fully drilled in it has every indication of making a good producer. Halmack Oil Co.'s No. 1 Hall, 4 miles southeast of Graham, after being cleaned out and reconditioned this past week, is making a steady flow of 500 bbls. daily.

The Eastland County section reported only one completion of any importance during the week. It was located in the Pioneer Pool. Several tests in the deep lime section of the county are nearing production depths and should be completed during the coming week. Fidelity Oil & Gas Co.'s No. 1 Gardenshire drilled in is flowing by heads and is making something like 20 bbls. of oil an hour. The sand was reached at 2,055 feet. This well is a considerable distance from the Nannie Walker Pool, and it is said that four offsets will be drilled immediately. Barney Carter and others' No. 1 Langford is a 2,000,000-foot gasser. The gas will be cased off, however, and an effort made to drill to the oil sand. Some 20 new locations have been made in and around Ranger during the past week.

Donnelly Drilling Co.'s No. 1 Duncan swabbed 72 bbls. the first 24 hours at 2,845 feet and will be drilled deeper. It shows all indications of making a good producer. The McLester test, 12 miles south of Ranger, is on the sand and, ac-

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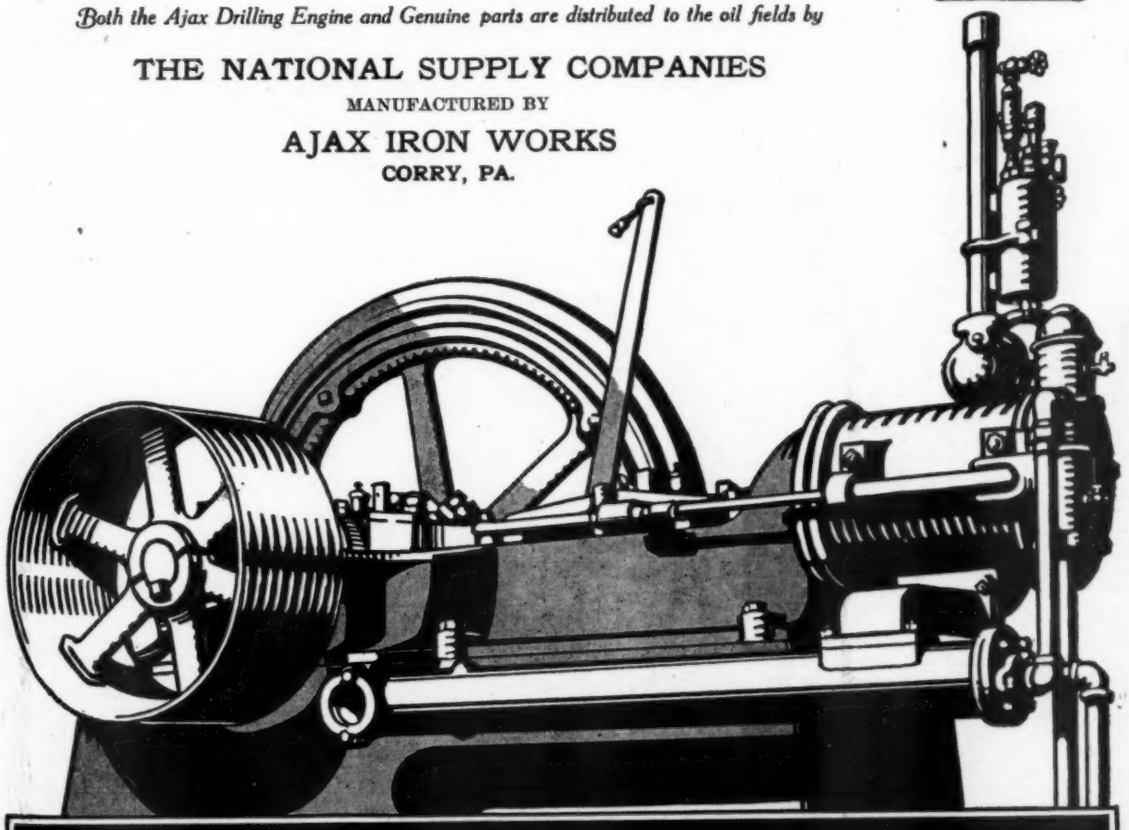

AJAX DRILLING ENGINES

1441

cording to reports, will be drilled in this week.

Brown County Operations

Operations in Brown County are increasing. The increase in the posted price of crude has proved an incentive to the local operators to get busy. The Brown County producing pools are located close to the town of Brownwood and north and northwest some few miles. Some operators believe that the north Brown County field is a continuation of the Pioneer Field, with the difference that the wells in Brown County hold up their production longer than those brought in at Pioneer. The wells in Brown County are not as good initial producers as those in the Pioneer Field. but every well yet brought in as a producer in the Brown County Field has either held up its output steadily or is now producing more oil than when completed, some of them over 12 months ago.

The shallow fields in Shackelford and Callahan Counties averaged over one completion a day the past week.

Drilling operations in the Moran shallow field now extend as far south as Block 2269, Premium survey, which is about 3 miles north of the town of Putnam, Callahan County. To the north and northwest of Moran the territory is dotted with drilling rigs for at least 12 miles. These tests reach the pay sand at 600 feet to 800 feet. South of Moran, the explorations have been confined to less than 500 feet deep for the reason that profitable production has been found at that depth.

General operations in Stephens County are expected to take on an added impetus after the first of the year and the early spring is certain to see more activity than there is at the present time. Stephens County has led all other classified pools in daily production in north central Texas for several months and over 3,000 wells have been completed in the past three years, yet there is left much really proven territory undeveloped. The new production depth found by the Mid Kansas and the Texas Consolidated Companies in their wells near Ivan and Eliasville will offer some attractions, especially to the larger companies.

In the Texas Consolidated Oil Co.'s No. 3 Martin, the second deep gusher to be completed in this new field at the depth of 3,901 feet, a gas sand was picked up making 1,500,000 cubic feet. At a depth of 3,908 feet the oil pay was tapped. The bit was carried to a depth of 3,915 feet and in the first 16½ hours the well flowed a total of 500 bbls.

Lewis Oil Co.'s No. 1 Dodd is swabbing at a depth of 3,180 feet. Top of the lime was hit at 3,173 feet. It is reported there is 1,500 feet of fluid in the hole. Hale & Knight's No. 2 Shipley is drilling up one joint of 5⅞-inch casing at a depth of 3,145 feet. The well is in the west half of the southwest quarter of Section 32, T. & P. Block 8.

Archer County Showing Up

Hale & McKnight announce a new well in their No. 4 O. Curry, making 75 bbls. following a shot of 60 quarts. The well is located 330 feet each way from the SE cor. SE, Section 17, Lunatic Asylum lands. The bit penetrated the top of the lime at a depth of 3,143 feet and was drilled 40 feet.

The past week failed to show many completions in Archer County and a slowing up of activity was reported the latter part of the week. Numerous tests are drilling but a great number of drilling tests have been shut down until after the holidays, when it is expected some tests now on the sands will be completed.

Several locations have lately been made for future tests, while others have spudded in and closed down. The best completion for the week was Scott & Gose's No. 2 Gose for 80 bbls. at 1,590 feet, and the second in initial production was Texhoma Oil & Refining Co.'s No. 35 Gose for 45 bbls. at 1,585 feet.

Only one completion was reported from the Burkburnett and Northwest Pools, it being White Oil Co.'s No. 1 Sides, good for 40 bbls. at 1,305 feet. Drilling operations in this district for the week in review are reported as follows: Baldwin Bros.' No. 6-C Kennedy rigging up to pump and test a sand at 905 feet; Godley Co.'s No. 1 Foster setting 6⅝-inch casing on top of a sand at 1,812 feet; No. 1 Hirschi is drilling at 905 feet; Gulf Production Co.'s No. 1 Dale drilling without any showing at 815 feet; Humble Oil & Refining Co.'s No. 26 Schultz plugging back from 2,230 feet to 1,725 feet and will test a sand at the shallower depth. McNalley and others' No. 1 Ramming shut down making repairs to the boiler at 1,475 feet; Magnolia Petroleum Co.'s No. 14 Anderson rigging up a machine to drill deeper at 1,726 feet; Priddy and others' No. 7 Birk shut odwn for orders at 1,833 feet; No. 9 Birk drilling without production results at 2,805 feet; Sunshine State Oil & Refining Co.'s No. 1 Ramming shut down for orders with a hole full of water at 1,663 feet; Bonner and others' No. 1 Beach drilled out a plug and has shut down for further orders. Hickman Heydrick and others' No. 1 Freeburg had a sand which made a little oil at 1,330 feet passed it up and are drilling at 1,355 feet.

The following completions were reported for the Wichita County and Electra district outside of Burkburnett and the northwest townsite pools: Green & Dale's No. 8 Beaver-Electra, 40 bbls. at 1,635 feet; McDaniel and others' No. 5 Douglas, 200 bbls. at 1,950 feet; Carter & Fine's No. 2 Fisher, dry at 2,175 feet; Carter Oil Co.'s No. 10 Burnett, dry at 1,425 feet; Empire Gas & Fuel Co.'s No. 32 Burnett, 25 bbls. at 1,840 feet; the same company's No. 70 Burnett, 25 bbls. at 1,830 feet; Foster and others' No. 1 Throckmorton, dry at 1,825 feet; Griswold Oil Co.'s No. 3-E Waggoner, 150 bbls. at 1,500 feet; Gulf Production Co.'s No. 11 Forbes-Burnett, 30 bbls. at 1,480 feet; John O'Neil's No. 7 Waggoner, 150 bbls. at 1,930 feet; Wichita Petroleum Co.'s No. 66 Burnett, 150 bbls. at 1,935 feet; Number Nine Oil Co.'s No. 1 Waggoner, Section 1 (Wilbarger County), dry at 2,254 feet; Duncan and others' No. 1 Curlee, dry at 770 feet.

Status of Drilling

Status of the different operating tests in this district for the past week are reported as follows: The Texas Co.'s No. 243 Waggoner drilling in red shale at 1,450 feet, No. 246 Waggoner drilling in hard lime at 550 feet, No. 248 Waggoner drilling in brown shale at 245 feet, No. 249 Waggoner drilling in sand rock at 110 feet, No. 250 Waggoner drilling in lime rock at 1,715 feet, No. 252 Waggoner drilling in red rock at 1,085 feet; Birdwell and others' No. 1 Krohn, dirlling in hard sand rock at 1,285 feet; Camp Oil & Gas Co.'s No. 3-B Douglas, drilling at 525 feet; Gulf Production Co.'s No. 7-A Jennings, running 5⅛-inch casing at 1,890 feet; Harrold and others' No. 5 Jennings, picked up a sand showing oil at 1,490 feet and is building a standard derrick and will test and may complete at this depth; McDaniel and others' No. 6 Douglas, will standardize at 1,909 feet and will drill in and probably complete near this depth; McKenna & Moore's No. 3 Waggoner, bailing with a very slight showing of oil from a sand at 1,995 feet; No. 5 Waggoner, shut down for orders at 1,975 feet; Magnolia Petroleum Co.'s No. 56 H. & T. C., drilling without any showing at 2,485 feet; No. 1 Douglas, with a total depth of 2,245 feet will plug back and test a sand at 1,040 feet; M. V. Oil Co.'s No. 1 Douglas has an oil sand at 1,945 feet, will standardize and test; Robinson and others' No. 1 Mitcham, drilling in shell rock at 1,415 feet; Associated Oil Co.'s No. 1 Burnett, picked up a sand at 1,575 feet that showed for around 20 bbls. daily, rig burned down, will rebuild rig and bail and test before drilling deeper; Empire Gas & Fuel Co.'s No. 51 Burnett, drilling in blue shale at 1,630 feet; No. 75 Burnett, waiting for cement to set at 1,630 feet; Fisher and others' No. 4 Fisher will bail and test a sand at 1,900 feet; Griswold Oil Co.'s No. 18-B Burnett, drilling in and testing a sand at 1,650 feet; No. 19-B Burnett at 1,555 feet has a sand that is showing for around 15 bbls.; Hammond and others' No. 1 Jennings is drilling in blue shale at 1,530 feet; Houston Oil Co.'s No. 6 Waggoner penetrated a sand showing some oil but probably will drill deeper at 1,998 feet; Ladd and others' No. 2-B Waggoner, picked up a shallow sand at 360 feet that is showing some oil, will test before drilling deeper; Larkin and others' No. 6 Burnett will set 6⅝-inch casing and test a sand at 1,962 feet; Lewis Oil Corporation's No. 2 Waggoner, reset 5⅞-inch casing with a packer at 1,526 feet and is pumping to exhaust a heavy water flow; Magnolia Petroleum Co.'s No. 13 Waggoner, drilling in a sand at 1,915 feet; No. 15 Waggoner, with 300 feet of oil in the hole is rigging up to pump and test a sand at 1,400 feet; No. 16 Waggoner, drilling at 1,855 feet; No. 17 Waggoner, drilling at 1,745 feet; Mutual Oil Co.'s No. 1 Burnett, drilling in lime without any production at 2,015 feet; John O'Neil's No. 9 Waggoner has set 6⅝-inch casing on top of a sand at 1,909 feet; Perkins and others' No. 1 Waggoner has a broken sand at 1,445 feet and is rigging up to bail and test; Ramming and others' No. 1 Fisher, at 1,902 feet is shut down and may be abandoned; Ryan Petroleum Co.'s No. 9 Nance is fishing for 6⅝-inch casing at 2,170 feet; Shamrock Oil Co.'s No. 8 Waggoner is running 6⅝-inch casing on top of a lime at 1,866 feet; Texland Oil Co.'s No. 2 Waggoner is bailing salt water with a slight showing of oil from a sand at 1,965 feet; Texhoma Oil & Refining Co.'s No. 12-A Waggoner is setting 6⅝-inch casing on top of a sand at 1,920 feet; No. 5-C Waggoner is drilling with a slight showing of oil at 1,935 feet; No. 6-C Waggoner is coring at 1,535 feet.

Wilbarger County

Aurora Oil & Gas Co.'s No. 1 Ogleby is fishing for a drill stem at 2,580 feet; Griswold Oil Co.'s No. 1, Section 38, is drilling at 850 feet; Hobbs Bros.' No. 3 Yarborough had a water sand at 1,955 feet and will case off and drill deeper.

Young County

Completions reported for the past week in Young County are the Sinclair Oil & Gas Co.'s No. 2 Kissinger, 700 bbls. at 2,550 feet; Tyrell and others' No. 1 McLaren, dry at 2,595 feet; Union Oil Co.'s No. 2 Askew. 5 bbls. at 3,775 feet; Whitehead & Henson's No. 2 McLaren, 12 bbls. at 2,610 feet.

Drilling tests—Associated Oil Syndicate's No. 5 Herron, shot with 20 quarts at 2,590 feet, responded with an estimated flow of 15 bbls; Bertrand and others' No. 4 Whittenburg, picked up a sand at 1,885 feet that showed oil, gas and water, succeeded in plugging off the water and test is now shut down with 250 feet of oil in the hole; Colpenn Production Co.'s No. 1 Rhodes is shut down preparing to shoot at 3,995 feet; Cosden Oil & Gas Co.'s No. 2 Lynn, drilling in rock at 900 feet; Elk Basin Oil Co.'s No. 11 Driver has a fishing job at 1,100 feet; Foster and others' No. 1 Durham is fishing for tools at 3,991 feet; Gulf Production Co.'s No. 3 Carmack, drilling in hard black lime at 3,630 feet; No. 1 Newby, drilling in lime without any showing at 4,235 feet; Konowa Oil & Gas Co.'s No. 1 Stovall is running tubing at 3,460 feet; Leader Oil Co.'s No. 1 Jarnagin, drilling at 3,770 feet; The Ligon Co.'s No. 3 Whittenburg, cleaning out and setting 6⅝-inch casing at 1,810 feet; No. 3 Whittenburg is on top of a sand showing rainbows and drilling at 1,880 feet; Mann and others' No. 4 Whittenburg has a sand showing some oil at 1,865 feet, passed it up and is drilling at 2,140 feet; Monroe Oil Corporation's No. 1 Cox, drilling in black lime at 3,855 feet; North American Refining Co.'s No. 1 McCow, plugging back from 2,605 feet to 2,174 feet, will test a sand at that depth; Pitzer & West's No. 3 Costello Bros., drilling in shale at 1,945 feet; Ralco Oil Co.'s No. 9 Driver, drilling in shale and lime at 3,625 feet; The Texas Co.'s No. 3 Jake Jones, drilling in black lime at 4,095 feet; No. 4 Jake Jones sidetracking in blue shale at 2,040 feet; Roxana Petroleum Co.'s No. 1 Bunger, drilling in black shale at 4,065 feet; No. 2 Bunger, drilling at 1,110 feet; No. 8 Ford, drilling in brown shale at 1,805 feet; Schimmell and others' No. 1 Bratcher, drilling at 2,535 feet; No. 1 Riverbed, drilling at 625 feet; Shamrock Oil Co.'s No. 1 Driver, shot with 100 quarts without results at 3,840 feet; Simms Oil Co.'s No. 12 Owens, drilling in shell rock at 1,985 feet; Snowden & McSweeney's No. 1 Shirley, fishing at 3,885 feet; Standard Petroleum Co.'s No. 1 McBrayer, fishing at 3,775 feet; The Sun Co.'s No. 1 Ferguson, 2,000 feet in the hole and shut down for orders at 3,482 feet; Taylor and others' No. 1 Costello, fishing for casing at 2,135 feet; Tyrell and others' No. 1-C Williams, running 6⅝-inch casing at 2,515 feet; Union Oil Co.'s No. 2 Parsons, underreaming 8½-inch casing at 2,722 feet; Wilkins and others' No. 1 Grimshaw, drilling in lime and shale at 4,040 feet.

Stephens County

Completions—T. & P. Coal & Oil Co.'s No. 3 Veale, 15 bbls. at 3,175 feet; The Texas Co.'s No. 1 Fite, 40 bbls. at 3,618 feet; Kleise and others' No. 1 Harland, 25 bbls. at 4,005 feet; Haile and others' No. 4 Curry, 75 bbls. at 3,180 feet; Fidelity Oil Co.'s No. 1 Gardenshire, 285 bbls. at 2,055 feet; Texas Consolidated Oil Co.'s No. 3 Martin, 600 bbls. at 3,915 feet and Mid Kansas Oil & Gas Co.'s No. 9 Hill, 25 bbls. at 4,077 feet.

Drilling tests—Empire Gas & Fuel Co.'s No. 5 Wallace, drilling at 590 feet; Equity Petroleum Corporation's No. 3 Brown, drilling in shale at 1,760 feet; Fox & Lamb's No. 4 Wallace, drilling at 885 feet; Gholson and others' No. 1 Gholson, cleaning out before drilling deeper at 1,470 feet; Hart Oil Corporation's No. 6 Hart, drilling at 845 feet; Humble Oil & Refining Co.'s No. A-2 Curry, drilling in blue shale at 2,390 feet; No. 3-B Jones, drilling at 1,110 feet; Kelly and others' No. 1 Bruce has a fishing job at 3,845 feet; Lewis Oil Co.'s No. 1 Dodd, swabbing 20 bbls. of oil and 40 bbls. of water at 3,180 feet; Mid Kansas Oil & Gas Co.'s No. 4 Hill, plugging back from 3,250 feet to 3,220 feet and will shoot at the shallower depth; No. 6 Atkins, drilling in shale at 2,205 feet; No. 7 Atkins, drilling at 1,035 feet; Pennock Oil Co.'s No. 2 Jones, drilling in shale and lime at 2,990 feet; No. 1 Moore has water trouble at 3,055 feet; Petroleum Producers Association's No. 1 Corbett, drilling at 1,355 feet; Prairie Oil & Gas Co.'s No. 12 Atkens drilling at 2,800 feet; No. 13 Atkens, drilling at 905 feet; Pender and others' No. 1 Davis, drilling at 1,505 feet; Republic Production Co.'s No. 1 Jones, drilling in shale at 2,185 feet; No. 3 Knox, drilling at 605 feet; Risher and others' No. 1 Thorp drilling at 1,070 feet; Swinsondale Oil Co.'s No. 23 Swinson, pulling casing to abandon after a shot without results at 3,300 feet; No. 24 Swinson. drilling at 785 feet; Silkwood Drilling Co.'s No. 1 Brown, fishing for tools at 900 feet; The Texas Co.'s No. 1 Black, fishing for casing at 1,880 feet; No. 1 Higgenbotham, drilling at 1,305 feet; No. 13 Pierce, fishing for tools at 1,225 feet; No. 4 Womack, lowering casing at 2,490 feet; No. 33-A Parks, drilling at 2,395 feet; No. 34-A Parks, drilling at 2,470 feet; T. & P. Coal & Oil Co.'s No. 5 Adams is drilling up iron at 3,600 feet; No. 5 Veale, drilling at 600 feet; No. 8 Newell, rigging up to drill deeper at 3,370 feet; Texas Consolidated Oil Co.'s No. 4 Martin, drilling in black lime with a showing of oil at 3,410 feet, and Walker & Caldwell Production Co.'s No. 1 Jones, drilling at 1,125 feet.

Eastland County

Completions—Car-De-Zone Oil Co.'s No. 1 Harwood, dry at 3,625 feet; McCamey and others' No. 2 Brooks, 300 bbls. at 2,520 feet; The Texas Co.'s No. 5 Cook, 50 bbls. at 2,510 feet, and Donnelly Drilling Co.'s No. 1 Duncan, 70 bbls. at 2,845 feet.

Drilling tests—Pioneer district, Humble Oil & Refining Co.'s No. 1 Underwood, drilling at 420 feet; Invincible Oil Corporation's No. 1 Dunn, drilling up a shoe at 2,245 feet; Junior Oil Co.'s No. 1 Shirley, shut down after a shot at 2,580 feet; Knight and others' No. 3 Irwin, drilling in shale at 1,205 feet; Keough and others' No. 8 Gooch, drilling at 890

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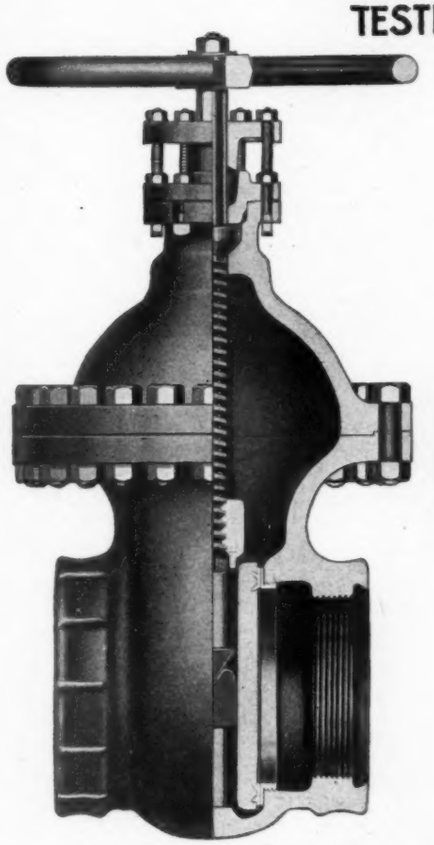

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feet; Forrest Miracle Oil Co.'s No. 2 King is fishing for tools at 2,220 feet; Sindorf and others' No. 1 Marshall, drilling at 955 feet; Simms Oil Co.'s No. 2 Bonner, drilling at 3,050 feet; T. B. Slick's No. 3 Shepherd, drilling at 1,720 feet; The Texas Co.'s No. 6 Cook, drilling at 450 feet, and T. & P. Coal & Oil Co.'s No. 2 Brannon, drilling at 1,115 feet.

Desdemona—Brothers and others No. 1 Rogers, drilling at 2,015 feet; Hess and others' No. 1 Rogers, drilling at 390 feet; McLester and others' No. 1 Dorman, drilling at 1,915 feet, and Simms Oil Co.'s No. 1 Woods, drilling at 1,530 feet.

Archer County

Completions—Barton and others' No. 3 Gose, dry and abandoned at 1,590 feet; Bower and others' No. 2 Ferguson, dry at 1,785 feet; Scott & Gose's No. 2 Gose, 80 bbls. at 1,590 feet; Texhoma Oil & Refining Co.'s No. 35 Gose, 45 bbls. at 1,587 feet.

Drilling tests—Alfalfa Petroleum Co.'s No. 1 Herron, trying to shut off water at 948 feet; Burton & Ruff's No. 1 Wilson, drilling in shale at 1,440 feet; Delmar Oil Co.'s No. 4 Plowman, drilling at 805 feet; Dee & Bellport's No. 1 Cowan, shut down for water at 3,010 feet; Electra-Gulf Oil & Gas Co.'s No. 1 Ferguson, tested 8 bbls. of oil from a sand at 1,595 feet, may drill deeper; No. 2 Ferguson, tested dry at 1,770 feet, pulling liner to deepen; Fain and others' No. 1 Kempner, cored a dry sand at 1,590 feet; drilling at 1,630 feet; Featherstone and others' No. 1 Ferguson, tested a sand at 1,619 feet that showed water and no oil; F. & H. Syndicate's No. 6 Ferguson, drilling at 1,625 feet; Gulf Production Co.'s No. 1 Ferguson, top of sand at 1,582 feet, has set 6⅝-inch casing and is shut down waiting for cement to set; Iowa Park Production Co.'s No. 1 Edwards, drilling at 1,385 feet; No. 1 Parkey, drilling at 905 feet; K. D. Oil Co.'s No. 3 Ferguson, drilling at 1,050 feet; Kentucky Oil Association's No. 3-A Taylor, rigging up to bail and test a sand at 1,478 feet; Knight and others, No. 3-A Ferguson, drilling at 1,405 feet; No. 2-B Ferguson, reaming at 1,550 feet; Lanning and others' No. 1-B Wilson, drilling at 1,305 feet; Looney & Loper's No. 1 Wilson, drilling at 1,615 feet; Lone Wolf Oil Co.'s No. 2 Ferguson, running tubing and rods at 1,585 feet; Oriental Oil Co.'s No. 1 Mangold, drilling in shale at 1,515 feet; Scott & Gose's No. 3 Gose, drilling in a sand showing oil at 1,581 feet; Shaw and others' No. 2 Ferguson, drilling at 1,165 feet; No. 2 K. & K., oil sand at 1,613 feet and will put on the beam; Smith Pipes and others' No. 1 Netherton, drilling at 1,445 feet; J. I. Staley's No. 7 K. & K., running tubing and rods on top of an oil sand at 1,598 feet; No. 9 K. & K., lost casing seat top of oil sand 1,583 feet; Stone and others' No. 1 K. & K., drilling at 1,210 feet; Texhoma Oil & Refining Co.'s No. 28 Gose, shut down for orders on top of an oil sand at 1,595 feet; No. 34 Gose, cleaning out with a drilling machine and will bail and test a sand at 1,588 feet; White Oil Corporation's No. 2 K. & K., oil sand at 1,770 feet that tested dry and is pulling 5⅛-inch casing and will drill deeper; No. 3 K. & K. is ready to spud.

PRODUCTION REPORT

Week Ending December 28, 1922

Burkburnett	
American Refining Co.	450
Humble Oil & Refining Co.	790
Gulf Production Co.	1,215
Kansas & Gulf Oil Co.	1,610
Magnolia Petroleum Co.	2,940
McMahon Oil Co.	600
Middle States Oil Co.	425
Okla. Pet. & Gas Co.	405
Panhandle Refining Co.	635
Ryan Petroleum Co.	385
W. G. Skelly	465
The Texas Co.	1,125
Texhoma Oil & Refining Co.	520
Miscellaneous	14,540
Total	26,105
Electra	
Empire Gas & Fuel Co.	3,705
Humble Oil & Refining Co.	245
Griswold Oil Co.	900
Gulf Production Co.	1,150
Magnolia Petroleum Co.	4,100
Middle States Oil Co.	2,690
The Texas Co.	6,235
Texhoma Oil & Ref. Co.	590
Miscellaneous	5,470
Total	25,085
Iowa Park, Holliday and Petrolia	
Iowa Park—	
Griswold Oil Co.	45
Gulf Production Co.	115
Middle States Oil Co.	20
Ryan Petroleum Co.	40
Texhoma Oil & Refining Co.	60
Miscellaneous	2,250
Holliday—	
The Texas Co.	390
Texhoma Oil & Refining Co.	1,700
Miscellaneous	1,905
Petrolia—	
The Texas Co.	90
Miscellaneous	200
Total	6,815
Stephens County	
Gulf Production Co.	2,506
Humble Oil & Refining Co.	2,355
Magnolia Petroleum Co.	1,600
Mid-Kansas Oil & Gas Co.	4,010
Prairie Oil & Gas Co.	2,165
Sinclair Oil Co.	340
The Sun Co.	515
The Texas Co.	3,950
T. & P. Coal & Oil Co.	1,485
Miscellaneous	11,960
Total	30,876
Eastland County	
Empire Gas & Fuel Co.	60
Gulf Production Co.	700
Humble Oil & Refining Co.	110
Magnolia Petroleum Co.	485
Mid-Kansas Oil & Gas Co.	40
Prairie Oil & Gas Co.	1,020
Sinclair Oil Co.	970
The Sun Co.	35
The Texas Co.	445
T. & P. Coal & Oil Co.	1,260
Miscellaneous	6,600
Total	11,725
Other Fields	
Strawn—	
T. & P. Coal & Oil Co.	230
Miscellaneous	1,000
Moran—	
Empire Gas & Fuel Co.	925
Humble Oil & Refining Co.	450
The Texas Co.	320
Miscellaneous	730
Coleman County—	
Miscellaneous	145
Brown County—	
Miscellaneous	780
Comanche-Eastland—	
Humble Oil & Refining Co.	375
Empire Gas & Fuel Co.	20
Magnolia Petroleum Co.	1,035
Mid-Kansas Oil Co.	305
Prairie Oil & Gas Co.	130
The Texas Co.	760
R. & P. Coal & Oil Co.	145
Miscellaneous	6,900
Young County—	
Gulf Production Co.	230
North American Refining Co.	275
Oklahoma Pet. & Gas Co.	185
Panhandle Refining Co.	370
Sinclair Oil Co.	350
The Sun Co.	45
Miscellaneous	8,230
Mitchell County	200
Total	24,135
Total all fields	124,741
Total last week	123,523
Gain	1,218

Wildcats

Montague County Drilling.—The Texas Co.'s No. 1 Lemons, drilling in salt water sand at 1,605 feet; Boyd Drilling Co.'s No. 1 Dr. Potter, drilling in shale at 2,400 feet; Boyd Oil Co.'s No. 1 Maddox, drilling at 405 feet; Fowler and others' No. 1 Fowler, pulling 10-inch casing to abandon at 3,330 feet; Guarantee Fund Oil Co.'s Jordan, shut down for 10 days at 1,120 feet; Montague Oil Syndicate's No. 2 Summerhour, repairing boiler; Sheppard and others' No. 1 Crenshaw is a rig; Spencer and others' No. 1 Wilson is a rig and Title Oil Co.'s No. 1 Handley is rigging up.

Jack County Drilling.—Avis Developers No. 1 Davis, mudding off a sand showing 5 bbls. of oil at 233 feet and will drill deeper; Fortuna Oil Co.'s No. 1 Halsell, underreaming 10-inch casing at 1,950 feet; Mitchell Oil Co.'s No. 1 Meyers, shut down at 1,305 feet; Ralco Oil Co.'s No. 1 Loving, drilling at 4,465 feet, and Ranger Oil & Gas Co.'s No. 1 Leatherwood, running 5⅛-inch casing at 3,492 feet.

Clay County Drilling.—Barker and others' No. 1 Craig, shut down for a drill stem at 710 feet; The Texas Co.'s No. 6 Martin, pulling 6⅝-inch casing at 1,765 feet; Gulf Production Co.'s No. 1 Worsham has some oil in the hole and is pulling 5⅛-inch casing and will test a lime at 3,365 feet; Riddle and others' No. 1 Hawthorne has a frozen drill stem and is shut down at 2,014 feet; Scalling Oil Corporation's No. 1 Scalling, fishing for a bailer at 1,000 feet, and Lone Star Gas Co.'s No. 9 Miller, cleaning out inside 8½-inch casing and had a sand at 1,140 feet that produced some gas.

Wise County Drilling.—Boonville Oil & Gas Co.'s No. 1 Castleberry, drilling at 580 feet; Flickenger and others' No. 1 Whatley, setting 5⅛-inch casing and cleaning out to bottom at 3,865 feet; Herbert Oil & Gas Co.'s No. 1 Banks drilling at 595 feet; Michigan Oil & Gas Co.'s No. 1 Young, drilling in shale at 2,155 feet, and Scott and Hunter's No. 1 Askey, drilling in shell rock at 2,305 feet.

Carson County Drilling.—Gulf Production Co.'s No. 3 Burnett, top of cave at 1,760 feet and is underreaming for 10-inch casing to 1,810 feet; Silk and others' No. 2 Burnett, drilling at 50 feet, and Tipton Stone and others' No. 1 McConnell, cleaning out at 2,510 feet.

Hutchinson County Drilling.—Cobble and others' No. 1 Cobble, shut down for a trip spear at 3,803 feet; Capitol Partnership Co.'s No. 1 Cockrell, shut down for 20-inch casing at 70 feet; Gulf Production Co.'s No. 1 Dial, drilled to 3,660 feet, plugged back to a lime formation and is shut down making repairs to boiler, and Whittington and others' No. 1 Sanford, underreaming 10-inch casing to 1,913 feet, top of lime 1,893 feet.

Potter County Drilling.—Amarillo Oil Corporation's No. 3 Masterson, drilling in seynite rock at 2,810 feet; No. 3 Bivens, completing with a showing of 15,000,000 cubic feet of gas at 2,535 feet; Hines and others' No. 2 Masterson, fishing for three joints of 10-inch casing at 900 feet, and Montgomery and others' No. 1 Masterson, completing at 2,610 feet with a showing of 75,000,000 cubic feet of gas.

Shackelford County.—Completions: Brannon & Murray's No. 4 English, dry at 648 feet; Helmerych and others' No. 1 Pritchard, 15 bbls. at 640 feet; Humble Oil & Refining Co.'s No. 1 Lynch, 35 bbls. at 3,580 feet; Hutton and others' No. 1 Hayden, dry at 180 feet; Lewis Oil Co.'s No. 2 Pritchard, dry at 300 feet; Lakewood Oil Co.'s No. 1 Fornby, 5 bbls. at 655 feet; Montgomery and others' No. 1 Carter, 30 bbls. at 635 feet. Drilling: Barber and others' No. 2 Huskins, drilling at 260 feet; Brainerd Petroleum Co.'s No. 3 Pool, drilling at 475 feet; Brown & Co.'s No. 1 Sedwick, setting casing at 2,700 feet; Cooper and others' No. 3 Tyrell, drilling at 570 feet; Chenault Oil Co.'s No. 7 English, drilling at 155 feet; No. 14 English, drilling at 500 feet; No. 16 English, fishing for casing at 595 feet; Empire Gas & Fuel Co.'s Nos. 2 and 3 Brazzell are rigs; Humble Oil & Refining Co.'s No. 2 Lynch, drilling at 2,105 feet; No. 1 Elliott, drilling at 2,405 feet; Landreth & Co.'s No. 2 Poindexter is a rig; Murphy & Bolanz' No. 2 Conrad is fishing for tools at 3,390 feet; S. D. C. Oil Co.'s No. 1 Fite is shut down after a shot at 1,960 feet, and The Texas Co.'s No. 1 Tankersley is drilling by casing at 2,640 feet.

Brown County.—Completions: Preston Oil Co.'s No. 3 Cox, 70 bbls. at 2,485 feet, and Infield Petroleum Co.'s No. 2 Windham, 70 bbls. at 2,415 feet. Drilling: Canyon Oil & Gas Co.'s No. 2 Starr, drilling at 1,460 feet; Fox & Lamb's No. 1 Sox, drilling at 410 feet; Leonard and others' No. 2 Prather, drilling in shale at 1,415 feet; Madison and others' No. 1 Hall, drilling at 1,670 feet, and Stein and others' No. 1 Evans has a showing of oil from 805 to 845 feet, shut down for orders.

Palo Pinto County Drilling.—Anderson and others' No. 1 Anderson, drilling in hard lime at 3,910 feet; Ashe Syndicate's No. 2 Hart, drilling in shale and lime at 2,880 feet; Clark and Burches' No. 1 Conklin, straightening a crooked hole at 3,010 feet; Dalton Oil Co.'s No. 2 Dalton is swedging casing at 3,715 feet; Gibson and others' No. 1 Holt is fishing for casing at 1,465 feet; Heydrick Oil Corporation's No. 1 Caudill is drilling at 760 feet; Heydrick and others' No. 1 Huey is fishing for casing at 2,685 feet; Lewis Oil Corporation's No. 1 Morgan, drilling at 1,255 feet; Miller-Dalton Oil Co.'s No. 1 Dalton is making 10,000 000 cubic feet of gas and some oil and fishing for casing at 3,930 feet; Nelson Oil Syndicate's No. 2 Finch is sidereaming casing at 3,300 feet; Owens & Burkett's No. 1 Gray-Sanger is showing 3,000,000 cubic feet of gas after a shot and cleaning out at 4,365 feet; Phoenix Oil Trust Co.'s No. 1 Dalton is showing some oil and drilling at 3,715 feet; Strong & Co.'s No. 1-A Seaman has a hole full of water and cleaning out to test at 3,160 feet.

Mitchell County Drilling.—Mitchell County Oil Corporation's No. 1 Badgett for the second time is flowing wild around 40,000,000 cubic feet of dry gas and 5,000 bbls. of salt water at 1,070 feet; Magnolia Petroleum Co.'s No. 1 Foster is drilling in hard shale at 3,145 feet; The California Co.'s No. 1 Richardson is fishing for lost tools at 1,960 feet; Flesher Petroleum Co.'s No. 1 Coleman is showing salt water and drilling at 2,665 feet; Colorado-Texas Petroleum Co.'s No. 2 Foster is drilling by a lost bit at 2,610 feet, and Western Petroleum Co.'s No. 1 Brennand is shut down with a hole full of water at 3,115 feet.

WATER ENCROACHMENT IN LONG BEACH FIELD

LONG BEACH, Cal., Dec. 28.—Five wells in the vicinity of Willow and Cherry Streets suddenly quit producing and the presence of water in two of them has been admitted. The wells affected were heavy producers, and because of their position on the structure, if edge water has developed, they would be the first to be affected. No. 2 Bess of the Bush-Voorhies Oil Co., which was completed at 3,249 feet some time ago, was making 600 bbls. when the production ceased, and No. 1 Doran of the Hager-Dennison Co. was flowing 1,000 bbls. from 3,416 feet until its sudden demise. No. 1 Dodge of the Henderson Petroleum Syndicate, another one of the wells affected, has been one of the most consistent producers in the field and was doing about 1,100 bbls. a day. The fourth well affected was well No. 4 of the Marine Oil Co., which had been doing about 1,900 bbls. a day for some time. The General Petroleum Co.'s No. 2 Scoco, a 500-bbl. well, also quit producing, and the action of the Technical Oil Co.'s No. 1 Stoner, a 1,000-bbl. well, producing from 3,412 feet, is particularly interesting in view of the apparent water encroachment. The well recently dropped to 60 bbls., and on being closed in the pressure goes up to 460 pounds and the flow of oil is normal again for a short time. The peculair action of the well probably is due to the fact that it has sanded up, or that water may be coming in. It has not been established that a menacing water condition exists in the immediate vicinity of these wells, but the fact remains that the production from the above wells practically stopped and that water has made its appearance in two of them. McMillan & Davis completed their No. 1 well in the Long Beach Field during the week at 3,875 feet. The well started off at 2,500 bbls. with a cut of 6.2 per cent under 350 pounds pressure, but two days later, after cleaning itself out, the well had increased to 4,650 bbls. and the cut was reduced to 0.2 per cent. The Shell Oil Co. deepened No. 1 Patton, which was completed in May for 575 bbls. from 3,190 to 3,600 feet, and was rewarded with a 1,375-bbl. well. The Walker Western Oil Co. placed their No. 1 well on production after cleaning it out, but the best that it would do was 175 bbls. of 23 gravity oil. The Federal Drilling Co., drilling No. 1 Butler for the Anchor Oil Co., ran into a good showing of oil at 3,435 feet and set the 8¼-inch at 3,390 feet. The Bartholomae Oil Syndicate is skidding its No. 2 rig after losing 1,975 feet of hole as the result of an unsuccessful fishing job. Several months ago the Fisher Oil Co. drilled a well on the south slope of Signal Hill to 4,420 feet and gave up the attempt to secure production. Recent developments in the vicinity of the well indicate the possibility of oil at a greater depth, and the Henderson Petroleum Syndicate is deepening the hole for 50 per cent of any production secured. On running in the tools the well was found to have filled up 3,940 feet. It will be deepened to around 4,700 feet and a thorough test made. The production from No. 7 Herwick shows an increase and the outpost well is now making about 335 bbls. a day. L.P.S.

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By M. L. VAUGHN

Completions at Smackover during week had estimated production of 39,000 barrels daily. Sinclair Oil Company procured two wells, good for 2,500 and 500 barrels, respectively. Olvey and others got a 6,000-barrel producer. In Constantin territory, Love Brothers procured 200-barrel pumper. Ohio Oil Company brought in 100-barrel well in Haynesville, La., pool.

EL DORADO, Ark., Jan. 1.

Completions in the Smackover district during the past week bring the estimated production of the new pool up to approximately 200,000 bbls. Shipments during the week averaged 98,100 bbls. a day, an increase of 30,210 bbls. over those of the previous week. Runs from the Haynesville and El Dorado pools showed a decrease of several thousand barrels daily, somewhat offsetting the big increase in the Smackover district.

Pipe line runs and shipments for the week from the various north Louisiana and south Arkansas pools averaged 194,680 bbls. a day and were distributed as follows:

North Louisiana	
Caddo light	9,230
Caddo heavy	2,140
De Soto and Red River	5,630
Elm Grove	1,160
Haynesville	40,690
Homer	11,010
Bellevue	4,500
Total	74,360
South Arkansas	
El Dorado	19,260
Calion	2,740
Smackover	98,100
Stephens	220
Total	120,320

Relief for operators in the Smackover Pool is promised by The Texas Co., which is surveying for a line to extend from its tank farm just south of Shreveport directly to Louann, a station in the center of the light oil district in the west end of the Smackover Pool. Considerable difficulty is being experienced by the Standard Oil Co. in running the heavy Smackover crude through the lines, but the oil in the Pat Marr well is an excellent grade and quality. This property was recently purchased by The Texas Co.

The Houston Oil Co., one of the most successful operators in the Smackover Field, will lay an 8-inch line from its production in the Smackover Field to Camden, a distance of 15 miles, from which point the oil will be shipped over the Cotton Belt and Rock Island railroads. The capacity of the line will be between 20,000 and 30,000 bbls. a day and the company itself has a production of approximately 20,000 bbls. with a number of wells waiting to be drilled in.

Smackover Field

Twenty-four wells were completed in the Smackover district last week with a total estimated daily production of 39,000 bbls. of oil and 80,000,000 cubic feet of gas. Six of the wells are located on the Union County side of the field and the remainder in Ouachita County.

In Union County, the El Dorado Natural Gas Co. completed its well on the Vinson Tatum lease in Section 11-16-16, pumping 300 bbls. of oil at 2,610 feet. The well is located in the southwest quarter of the section. In this same section, about three-quarters of a mile northeast of the Vinson Tatum well, Ganzel and associates have completed No. 1 Leverett, making 35,000,000 cubic feet of gas from 110 feet of broken sand at 2,075 feet. About one-quarter mile south of the large production, the Gulf Refining Co. completed No. 1 James, Section 6-16-15, flowing 8,000 bbls. from 45 feet of sand at 1,995 feet. In the adjoining section, 1-16-16, the company completed No. 1 Primm, just south of the McDonald wells, flowing 1,000 bbls. from 2,000 feet. In this same section, Stachan & Robertson completed No. 1 Parkinson, making 20,000,000 cubic feet of gas at 1,995 feet, just south of the Gulf well. Simmons and others brought in No. 1 Rodgerson, one-quarter of a mile south of Edmonson and others' gasser in Section 2-16-16, making 3,000,000 cubic feet of gas and a spray of oil at 2,055 feet.

In Ouachita County, a number of wells were completed on the edge of production, but no big extension of the district was made. Probably the most distant well was that of the Forrest Oil Co. in Section 26-15-16. The well is located on the Lewis lease in the SE cor. NE SE and came in with a daily production estimated at 500 bbls. from 2,065 feet, nearly half a mile north and west of production. On the east edge of the field, the Pure Oil Co. completed Nos. 1 and 2 Brister in Section 28-15-15, making 2,000 bbls. at 2,062 feet and 1,500 bbls. from 2,065 feet respectively.

The Arkansas Chief Oil Co. completed No. 3 McKenzie, Section 36-15-16, flowing 1,000 bbls. at 2,010 feet. In the same section, McAdoo and others completed No. 1 Linahan, with an estimated flow of 10,000,000 cubic feet of gas and a spray of oil from 2,015 feet. The Sinclair Oil Co. completed No. 2 Linahan, flowing 2,500 bbls. from 1,995 feet and No. 4 Linahan, flowing 5,000 bbls. from 1,995 feet and the Vitex Oil Co. brought in No. 1 Linahan, flowing 2,000 bbls. from 2,030 feet.

The Gulf Refining Co. completed No. 1-A Forch, Section 29-15-15, near the discovery well, flowing 25 bbls. from 2,040 feet. In Section 32-15-15 it brought in No. 4 Umpstead, flowing 200 bbls. from 2,015 feet. The Houston Oil Co. completed No. 1 Primm, just on the line in Section 1-16-16, flowing 200 barrels from 2,015 feet. In the same section, Olvey and others completed No. 3 McDonald, flowing 6,000 bbls. at 2,000 feet.

R. J. McMurray completed No. 1 Laney, Section 25-15-16, flowing 500 bbls. at 2,050 feet. The Roxana Petroleum Co. brought in No. 2 R. Bennett, Section 32-15-15, flowing 750 bbls. of oil and making 15,000,000 cubic feet of gas at 2,010 feet.

The Simms Oil Co. completed No. 3 F. A. Laney, Section 31-15-15, flowing 200 bbls. at 2,055 and No. B-1 F. A. Laney in the same section, flowing 2,000 bbls. from 2,015 feet. In Section 29-15-15, it brought in No. 2 Nanny Murphy, flowing 5,000 bbls. at 2,050 feet. The Standard Oil Co. completed No. 4 A. Forch, Section 29-15-15, flowing 500 bbls. at 2,020 feet.

Drilling Operations

In the Union County area of the Smackover Field the completion of several gassers within 2 miles of the largest Smackover production has caused operators to even more carefully watch a number of tests in that vicinity which are nearing completion and which, it is hoped, will come in with the big production that is being obtained a little further north and to the west. In Section 8-16-16, Bement and others have derrick up for No. 1 Laney; the Federal Petroleum Co. is drilling at 1,400 feet in No. 1 Childs; Turner & Brooke's No. 1 Laney blew out at 1,898 feet and is flowing 5,000 bbls. of fresh water and making 7,000,000 cubic feet of gas from 15 feet of sand.

Cargill and associates are down 1,300 feet in No. 1 Saxon, Section 9-16-16; the Reliance Drilling Co. is down 1,100 feet in No. 1 Meakin. Blancher and others have set 12½-inch casing at 200 feet in No. 1 Turnage, Section 3-16-16, about a mile from the Clark & Melat well. In the same section Marr and others are drilling at 50 feet in No. 1 Green, Lot 3.

Clark & Melat have set 6-inch casing at 1,940 feet in No. B-1 C. L. Saxon, Section 4-16-16, and are down 1,345 feet in No. B-2. In the same section, Danciger and others are drilling at 1,100 feet in No. 2 Saxon; the Livingston Oil Co. has set 6-inch casing at 1,987 feet in No. 1 C. L. Saxon; H. M. Marr tested 75 feet of broken sand in No. 3 Saxon with 3,000,000 cubic feet of gas as a result from 2,025 feet. The Standard Oil Co. is drilling rock at 500 feet in No. 1 Saxon. The Texas Co. has set 6-inch casing at 1,885 feet in No. 1 C. L. Saxon; Tomberlin and others have set 8-inch casing at 510 feet in No. 1 McElroy and Wells and others are drilling at 1,190 feet in No. 4 Saxon. Crawford & Sebastain are waiting orders at 2,415 feet in No. 1 Williams, Section 21-16-16, two and one-half miles south of the Clark and Melat well.

Nearly 2 miles west of production, the Federal Petroleum Co. has derrick up for a test on the McDonald lease, Section 34-15-16. The Gulf Refining Co. is down 1,000 feet in No. 2 James, Section 6-16-15, just south of production. In Section 1-16-16, a number of wells are under way. The Gulf Refining Co. has four rigs running on the Primm lease and two on the McDonald lease. The Humble Oil & Refining Co. is drilling at 1,260 feet in No. 2 Primm and rigging up No. 4. The Houston Oil Co. has three rigs running on the Primm lease, Lot 2. Schoonmaker and others are rigging up to drill No. 1 Stedman. The Sun Co. is down 1,420 feet in No. 1 Primm.

The Gulf Refining Co. is down 785 feet in No. 1 Lewis Werner and has set 10-inch casing at 430 feet in No. 2, Section 5-16-16, and is down 1,300 feet in No. 1 C. L. Saxon, same section, just west of the Clark & Melat well. Smitherman & McDonald are setting 10-inch casing at 535 feet in No. 2 Saxon. Just north of Patt Marr's well, the Gulf Refining Co. has set 14-inch casing at 80 feet in No. 1 Meakin, Section 33-15-16. In the same section, the Houston Oil Co. has set 6-inch casing at 1,895 feet in No. 1 Johnette. The Magnolia Petroleum Co. is down 20 feet in No. 2 Meakin. Travis and associates are drilling at 20 feet in No. 1 LeCroy.

Just west of production, Hammon and others are rigging up No. 1 McDonald, Section 35-15-16. The Morris Drilling Co. is down 1,025 feet in No. 1 LeCroy Tarver and others have set 8-inch casing at 510 feet in No. 1 LeCroy. H. M. Marr has set 8-inch casing at 1,880 feet in No. 2 Primm, Section 2-16-16, where two gassers have been completed near by. The Ohio Oil Co. has set 12½-inch casing at 105 feet and is down 300 feet in No. 1 Gordon, Section 16-16-17, several miles south of production. The Pan-American Oil Co. has started drilling a well on the Werner lease, in Section 32-15-16, nearly 2 miles north of the Tarver well.

Ouachita County

A summary of operations in the Ouachita County area of the Smackover Field during the past week shows 6 wells waiting standard rig to pump 8 tests temporarily abandoned, 79 drilling, 12 rigged up, 30 derricks and 4 locations.

In the heart of production, Berry & LaGrande have five rigs running on the McKenzie lease, with location made for No. 10 and derrick up for No. 11, Section 36-15-16. In the same section, Bradstreet and others have set 6-inch casing at 1,925 feet in No. 2 Laney; the Empire Gas & Fuel Co. has set 15½-inch casing at 150 feet in No. A-2 Laney, and has derrick up for No. A-3. The Smith Oil Co. is drilling at 400 feet in No. 2 McKenzie and tested salt water at 2,020 feet in No. 2 Linahan, and is now plugging back from 2,012 feet. The Texas Co. is drilling at 1,075 feet in No. 4 McKenzie.

Just north and west of production, Bradstreet and others have derrick built for a well on the Davidson lease, in Section 26-15-16; the Humble Oil & Refining Co. has No. 1 Davidson ready to begin drilling, in the same section. In the adjoining section, 25-15-16, where some production has been obtained in the southern half of the section, the Houston Oil Co. is drilling at 1,200 feet in No. 2 Cunningham. Burton, trustee, is drilling at 1,200 feet in No. 1 Hughes, Section 28-15-16, about 2 miles northwest of production.

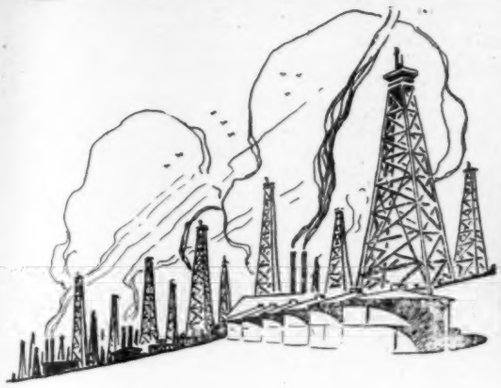
Jimmie Cox is down 1,400 feet in a test on the Ferris Burton lease, Section 30-15-17, several miles west of Smackover production. The G. & G. Syndicate has set 8-inch casing at 1,890 feet in No. 2 Laney, Section 31-15-15, in the heart of production. In this section, the Gladys Belle Oil Co. is drilling sand at 1,917 feet in No. 1 Laney. The Houston Oil Co. has set 6⅝-inch casing at 1,900 feet in No. 4 Laney, and has 15½-inch casing set in No. 5 at 40 feet. The Humble Oil & Refining Co. has 6-inch casing set at 1,900 feet in No. 3 Laney and has a derrick built for No. 4. The Noco Petroleum Co. is down 1,150 feet in No. 2 Laney. The Roxana Petroleum Co. is arranging to test No. 1 Laney at 2,030 feet and is drilling at 555 feet in No. 4. The Simms Oil Co. has set 8-inch casing at 1,895 feet in No. 5 F. A. Laney, and the same at 1,875 feet in Nos. B-2 and C-3. The Sinclair Oil Co. has derrick up for No. 2 F. A. Laney, and the T. P. Coal & Oil Co. is drilling at 1,350 feet in No. 3 Laney.

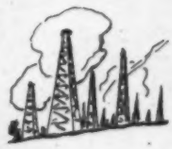
In Section 32-15-15, where a number of large wells have been completed, the Gulf Refining Co. is drilling at 990 feet in No. 1 Bennett; the Humble Oil & Refining Co. has rig up for No. 5 F. A. & B. T. Laney; the Roxana Petroleum Co. is rigging up to drill No. 3 Bennett; Skinner and associates have derrick erected for No. B-1 Berg Brothers; the Simms Oil Co. is rigging up No. C-1 Berg Brothers, has 15½-inch casing set at 40 feet in No. 3 Reynolds; the Standard Oil Co. has set 6-inch casing at 1,900 feet in No. B-1 R. Bennett, and has derrick up for No. 2; 6-inch casing set at 1,875 feet in No. B-1 and S. Umpstead is down 1,450 feet in No. B-2.

The Humble Oil & Refining Co. has set 6-inch casing at 1,860 feet in No. 1 Flannagan; rigging up No. 2, and has derrick built for No. 3, Section 6-16-15, just south of the big producing area. In the same section, Mann and others are drilling at 1,870 feet in No. 1 McClanahan; the A. & M. Oil Co. is arranging to test No. 1 James at 2,010 feet and has rig up for No. 2; the Sinclair Oil Co. is drilling at 1,890 feet in No. 1 Flannagan; has rig up for Nos. 3 and 6; derrick built for No. 4 and location made for No. 7.

In Section 30-15-15, where big production has been procured from the east and south, the Humble Oil & Refining

PERFECTION VAPOR PRESSURE TANKS
WOOD, AND BOLTED STEEL TANKS





Battery of Perfection Vapor Pressure Tanks in the Henryetta Field, Oklahoma.

"We Will Be Pleased to Recommend It"

A Field Superintendent Testifies as to Perfection Worth

Okemah, Okla., August 1, 1922.

Black, Sivalls and Bryson,
Henryetta, Okla.

Gentlemen:

Enclosed please find Order No. 403 covering order for one 500-barrel Perfection Vapor Pressure Steel tank.

The tank so far has proven a great success and we will be pleased to recommend it to any one at any time.

With all good wishes, I am,
Sincerely,
F. E. HAMMOND,
Supt.

Copy of letter received from official of Midwest and Gulf Oil Corporation.

That's the kind of testimony in the words of F. E. Hammond, superintendent at Okemah, Okla., for the Midwest and Gulf Oil Corporation, that ought to take away every lingering doubt in your mind as to the claims we have made for Perfection Vapor Pressure Tanks.

You too will be glad to recommend them, once you have installed a battery on your lease. You will find they will pay for themselves in a remarkably short time.

It's simple as A. B. C.—this paying for themselves!

Perfection Tanks through their special construction absolutely eliminate all gaugeable evaporation losses. Dollars that go up into the thin air, find their way to the credit side of your bank balance.

Now that the pipe line companies are buying crude on a gravity basis, it is doubly important that you watch this evaporation item. Crude stored any length of time in the ordinary tank, not only loses in quantity but quality.

In other words, you not only sell less oil than you pumped from the well, but you will likely get a lower posted price.

Don't put up with these losses longer. Get in touch with our nearest field representative today. They are to be found in every active district. Better still you will find ample stocks of Perfection Vapor Pressure Tanks, ready for erection by skilled workmen.

After installation, like scores of other operators you can laugh at evaporation.

Black Sivalls & Bryson
INC.
BARTLESVILLE ~ OKLAHOMA

Co. is down 2,020 feet in No. A-1 Berg Brothers; the Simms Oil Co. is drilling at 1,190 feet in No. D-2 F. A. Laney, and the Sun Co.'s No. 2 Johnson stands 500 feet in oil at 2,025 feet. Olvey and others have set 6-inch casing at 1,880 feet in No. 4 McDonald, Section 1-16-16, near their other producers and have 6-inch set at 1,875 feet in No. 5 McDonald.

The Simms Oil Co. has set 6-inch casing at 1,930 feet in No. 4 J. E. Murphy, Section 28-15-15. In Section 29-15-15, where the discovery well was completed, the Simms Oil Co. is down 35 feet in No. 3 Nannie Murphy and has 8-inch casing set at 1,945 feet in No. 4 Tom Murphy. The Standard Oil Co. is drilling at 1,650 feet in No. 2 A. Forch and waiting standard rig to pump No. 3 at 2,035 feet. The Smackover Creek Oil Co. has rig up for No. 1 Moon, Section 32-15-17, several miles from production. Thompson and others have set 10-inch casing at 510 feet in No. 2 McDonald, and the same at 645 feet in No. 4, Section 1-16-16.

El Dorado

A summary of El Dorado operations for the past week, including the Smackover wells, shows 22 wells waiting standard rig to pump, 17 tests temporarily abandoned, 82 drilling, 22 rigged up, 68 derricks and 3 locations.

Outside of Smackover producers, only one well was completed in the El Dorado district and that in the Constantin territory. Love Brothers Petroleum Co. brought in No. 1 Miles, Section 35-17-16, pumping 200 bbls., 10 per cent salt water, at 2,935 feet. In this territory, where some of the best production of the field is being obtained, Clark & Greer are down 2,800 feet in No. 1 Goodwin, Section 2-18-16. The Constantin Oil & Refining Co. is rigging up to drill Nos. 1 and 3 T. E. Goodwin, Section 2-18-16. They have derrick up for No. 1 Miller, Section 35-17-16, and in Section 1-18-16. they are down 2,900 feet in No. 2 Trimble.

The El Dorado Natural Gas Co. is arranging to set 6-inch casing at 2,910 feet in No. 2 Frazier, Section 1-18-16, and is rigging up to drill No. 2 Mellor, in the same section. Morgan and associates are rigging up to drill No. 2 Mellor, Section 1-18-16. The Standard Oil Co. is down 2,825 feet in No. 1 Reynolds, in the same section.

In the east, or Calion Field, Bogger and others are waiting standard rig to pump No. 1 Smith at 2,170 feet, Section 20-17-14. Ryan and others are down 2,060 feet in No. 1 Smith, Section 19-17-14. Watkins and others are drilling at 2,615 feet in No. 2 Morgan, Section 29-17-14. The Weiss Oil Corporation is down 1,540 feet in No. 1 Allen, Section 18-17-14. Woodley and associates have shut down No. 1 Townsend, a little south of production at 2,905 feet, Section 6-18-14. In the South Field Kemp and others are drilling at 2,450 feet in No. 1 Gaza, Section 6-19-15. The Magnolia Petroleum Co. is arranging to cement 4½-inch casing at 2,202 feet in No. 1 Ingram, Section 20-17-15, and Olvey and others are drilling at 2,905 feet in No. 4 Mann, Section 29-18-15.

Arkansas Wildcats

Columbia County.—The Atlantic Oil & Refining Co. has set 6-inch casing at 2,011 feet in No. 1 Webber, Section 25-15-20. E. T. Brown and others are down 1,700 feet in No. 1 Robinson, Section 23-18-23, 13 miles southwest of Magnolia. Dudney and others have set 6⅝-inch casing at 2,015 feet in No. 1 Thompson, Section 27-15-20. The Magnolia Petroleum Co. has set 10-inch casing and drilled to 400 feet in No. 1 Duffer, Section 35-18-19, and the Transcontinental Oil Co. is drilling at 2,960 feet in No. 1 Curry, 2 miles south of Stephens, in Section 5-16-19.

Lincoln County.—The Lincoln County Oil Co. is drilling at 1,215 feet in No. 1 Touchstone, Section 9-12-9.

Nevada County.—The Gulf Refining Co. has shut down No. 1 Grove Land & Lumber Co. for fuel at 2,505 feet, 5 miles northwest of Stephens, in Section 34-14-20. Seventeen miles southwest of Prescott, the Kenark Oil Co. has shut down No. 1 Phillips at 2,165 feet, Section 21-13-21.

NORTH LOUISIANA

SHREVEPORT, La., Jan. 1.—At the close of the week in the Haynesville district there were 2 wells arranging to pump, 4 test temporarily abandoned, 16 drilling, 1 rig, 5 derricks and 5 locations.

Three tests were reported completed in Claiborne Parish, one a producer in the Haynesville Pool, and two of them tests in outlying territory, drilled to the deep sand and failing to get production. The Ohio Oil Co. completed No. 14 H. P. Camp, in Section 10-23-8, pumping 100 bbls. at 2,827 feet. The Haynesville-Star Oil Co. drilled to 3,140 feet in No. 1 Crump, Section 9-23-7, four miles northeast of production, and the test was abandoned at this depth. O'Neal & Black and others have abandoned No. 1 Prestridge at 4,100 feet. This test was located in Section 17-22-6, eight miles southeast of Haynesville.

Drilling activity in the Haynesville district is confined almost entirely to wells drilling in the heart of the field by the Ohio Oil Co. and the Gilliland Oil Co. The Gilliland Oil Co. is down 3,340 feet in a deep test on the S. C. Waller land, Section 11-23-8, reaming to the bottom of the hole, and has two rigs running on the T. W. Sherman lease, in Section 10-23-8. The Ohio Oil Co. made three new locations during the week, No. 1 S. L. Beene, in Section 13-23-8; No. 4 A. C. Camp, in Section 24-23-8, and No. 7 T. G. Seegers, in Section 10-23-8. Derricks were built for No. 16 H. P. Camp, in Section 15-23-8; No. 25 Garrett and others, in Section 24-23-8; No. 20 Hunt, in Section 16-23-8, and No. 9 J. R. Sherman, in Section 23-23-8, is rigging up to drill. No. 3 Reeder, in Section 26-23-8, is arranging to pump, and rigs are running on No. 17 T. W. Sherman, in Section 15-23-8, and Nos. 7 and 8 J. R. Sherman, in Section 23-23-8.

The W. H. C. Oil Co. is down 2,930 feet in a deep test on the Dillon lease, in Section 11-19-7. Tigner and others have set 6-inch casing at 2,080 feet in No. 1 Mosely, Section 14-20-6, seven miles southeast of the Homer district. Zeigen & Bender have set 6-inch casing at 1,440 feet in No. 1 Hamiter, Section 13-20-8, 3 miles south of the Homer district.

Caddo

Interest in the old Caddo Field is centered chiefly on the deep drilling now in progress in the Pine Island district. Of the four completions in Caddo during the past week, two were small producers from the deep sand, one a chalk rock well and one a failure. The Fortuna Oil Co. drilled to 2,800 feet in No. 16 Robertshaw, Section 23-21-15, getting a 15-bbl. pumper. The Gulf Refining Co.'s No. 7 Tyson, in Section 14-21-15, made a 30-bbl. pumper at 1,975 feet. The Dixie Oil Co. completed a 25-bbl. pumper at 1,670 feet in No. 39 Robertshaw, Section 14-21-15, and abandoned Slattery B-2, Section 21-21-15, at 1,728 feet.

In the old Mooringsport district, Busey and others are drilling at 1,300 feet in No. 1 Joyce, Section 35-20-16. North of Lewis, the Caddo Central Oil & Refining Co. is drilling at 2,140 feet in No. 1 State fee, Section 13-21-16, and Bill Rowe and associates have gone back into the old Caddo Field and are drilling at 2,521 feet in No. 1 Kendrick, Section 33-23-16, five miles northwest of Vivian.

The Old Settlers Oil Co. is drilling at 300 feet in No. 2 Como, Section 13-21-15; the Gulf Refining Co. is drilling at 2,575 feet in No. 8 Herndon, Section 15-21-15, and at 2,175 feet in No. 15 Lane, Section 12-21-15, and the Dixie Oil Co. has set 10-inch casing at 125 feet in No. 6 Caddo Mineral Land Co., Section 23-21-15. The Integrity Oil Co. is down 3,240 feet in a wildcat test 6 miles south of Shreveport, on the Haviland lease, in Section 4-15-13.

De Soto Parish

No completions were recorded in the De Soto district during the week and at present there are only three rigs running. R. L. Autrey and others are drilling at 1,700 feet in No. 1 Safford, Section 4-11-11, in the Dolet Lake district. Barry and others are drilling at 1,100 feet in No. 1 Bice, Section 31-12-11, and The Texas Co. has derrick up for No. 1 Lanier Land & Oil Co., in Section 33-12-11. The Pilgrim Oil Co. has set 4½-inch casing at 4,565 feet in a deep test on the Ramsey lease, in Section 34-13-16, six miles north of Logansport.

Bellevue District

There were no completions in the Bellevue district during the week and only one rig is now running. R. L. Autrey and others are drilling at 350 feet in No. 2 Smith, Section 26-19-11.

Red River Parish

In the old Bull Bayou Field, the Fortuna Oil Co. has 500 feet of oil standing in the hole in No. 8 Pugh, Section 7-12-10, and standard rig is being built to pump. The well is down 2,800 feet. Armistead, trustee, is drilling at 650 feet in No. 1 Armistead, Section 24-12-11.

Louisiana Wildcats

Bienville Parish.—The Acadia Syndicate is arranging to shoot formation at 1,270 feet in its test on the Reynolds lease, Section 19-18-5, in the southwest corner of the parish. Wadley and associates are drilling shale at 1,840 feet in No. 1 Lawhorn, Section 8-16-8.

Bossier Parish.—The Texas Co. has completed No. 13 Caplis in the Elm Grove district, Section 24-16-12, pumping 25 bbls. a day at 1,635 feet. In this same territory, the Atlas Oil Co. is waiting standard rig to pump No. 8 Caplis at 1,545 feet, Section 23-16-12. The Gulf Refining Co.'s No. 11 Hodges is flowing 800 bbls. of salt water and 2 bbls. of oil from 4,437 feet, now waiting orders; No. 13 is waiting standard rig to pump at 1,540 feet and No. 14 is drilling at 75 feet, all in Section 24-16-12. Three miles southeast of Benton, Perkins and associates have abandoned the hole of No. 1 Gayle at 2,325 feet, Section 33-20-13.

Lincoln Parish.—The Roxana Petroleum Co.'s No. 1 Thomas stands full of salt water at 2,862 feet. The test is located in Section 24-18-4w, six miles west of Ruston.

Morehouse Parish.—Haynes and others are reaming to bottom from 2,315 feet in No. 1 Dixie Lumber Co., Section 54-17-3e. Ladell and others have three wells drilling on the fee lease in Section 27-20-5e. Morris, trustee, is down 1,450 feet in No. 11 Crossett Lumber Co., Section 30-21-5e. The Texas Co. has derrick up for a well on the Atkins lease, Section 27-20-5e, and is reaming to bottom from 3,080 feet in No. 3 Tensas Delta Land Co., Section 10-20-4e.

Ouachita Parish.—Barbour and others are drilling at 560 feet in No. 1 Barbour, Section 27-19-5e. Easterling, trustee, has set 10-inch casing at 195 feet in No. 1 Bogh, Section 28-19-5. Hosterman and others are drilling at 1,925 feet in No. 1 Epstein, Section 6-18-5e. The Louisiana Gas & Production Co. has set 6-inch casing at 2,155 feet in No. 1 fee, Section 20-20-5e. The Ouachita Gas Co. has set 8-inch casing at 1,270 feet in No. 3 Walker, Section 31-19-5e. The Southern Carbon Co. is down 2,115 feet in No. 1 Edelen, Section 5-18-5e. The Standard Carbon Co. is drilling at 800 feet in No. 1 Walker, Section 32-19-5e. The Texas Co.'s No. 1 Gibbs is blowing 6,500,000 cubic feet of gas at 2,235 feet, Section 29-19-5e. The Texas-Louisiana Production & Carbon Co. is down 250 feet in No. 1 Wadlie, Section 2-19-5e. Townsley and others have shut down No. 1 Townsley at 2,090 feet, Section 28-19-5e. The Union Gas & Power Co. is drilling at 460 feet in No. 1 Daughtie, Section 35-19-5e.

Webster Parish.—Brewer and associates tested salt water at 2,788 feet and have temporarily abandoned No. 1 Giles, Section 12-23-11. The Brothers Syndicate is drilling at 1,125 feet in No. 1 Cox, Section 14-22-10. The Daniel Boone Oil Co. has completed No. 1 G. T. Wheeler, Section 35-23-11, making 15,000,000 cubic feet of gas at 2,682 feet. Tarver and others have abandoned No. 1 Campbell on account of salt water at 2,682 feet, Section 2-22-10. The Fortuna Oil Co. is drilling at 1,600 feet in No. 1 J. R. Baker, Section 35-23-11. Lloyd Harris is down 2,300 feet in No. 4 Pine Woods Lumber Co., Section 34-23-11. The Henderson Syndicate is down 750 feet in No. 1 Pardee, Section 10-22-10. The Oilfield Gas Co. has set 8-inch casing at 1,105 feet in No. 1 Camp, Section 25-23-10. Smitherman & McDonald are bailing 6-inch casing at 2,615 feet in No. 1 Waller, Section 28-23-11. Snyder & Roy are down 1,930 feet in No. 1 Moore, Section 13-19-9. Snyder and others are drilling at 1,100 feet in No. 1 Hodges, Section 15-21-10, and at 1,700 feet in No. 1 Sidney Buck, Section 16-21-10.

SLIGHT DECREASE NOTED IN DRILLING ACTIVITY IN NEW SMACKOVER, ARK. FIELD

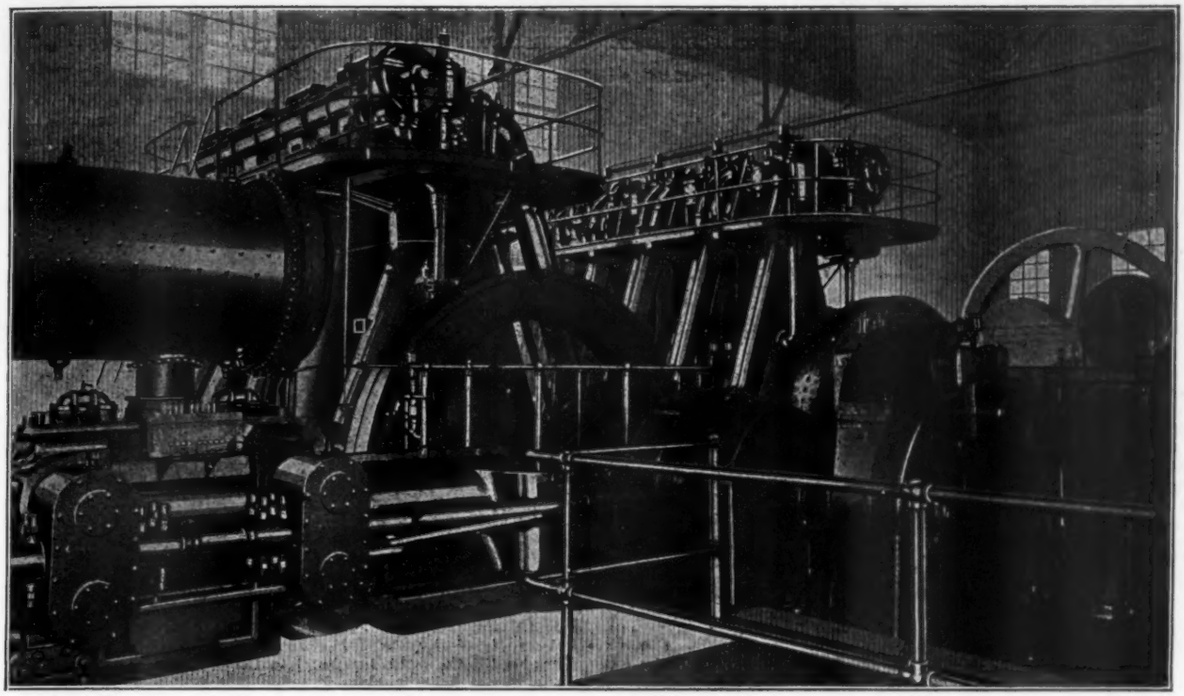
EL DORADO, Ark., Jan. 1.—A slight decrease in drilling activity is noticeable throughout the Smackover territory, partly due to the holiday season and to some extent to the fact that many operators are not drilling in their wells or starting new development until storage facilities have been provided for the anticipated production.

Every effort is being made to provide storage and shipping facilities for the oil being produced in the new pool, but the work is necessarily slow and operators are suffering enormous losses from the delay. The completion of the Standard Oil Co.'s line to Smackover has materially increased the output of the pool, but has not proved any relief to the independent operators in that district, as the Standard is only handling its own oil. Substantial relief is promised by the Louisiana Oil Refining Corporation, which is building earthen storage for 1,000,000 bbls. at Smackover, and is laying two 6-inch lines from Smackover to El Dorado to connect with its main line to Shreveport. The Louisiana has no production at Smackover and will buy production from that district.

An effort is being made to induce the Chicago, Rock Island & Pacific Railroad to build a branch line from Calion, 3 miles northeast of El Dorado, to Smackover, a distance of 8 miles, in order to relieve the congestion at that point. At present, the Missouri Pacific is the only railroad running through Smackover and its facilities are totally inadequate to handle the situation.

BAYER TO SPEAK AT ENGINEERS' MEETING

Representing the Association of Natural Gasoline Manufacturers, L. F. Bayer, manufacturing manager for the Tidal Oil Co., of Tulsa, will take part in the program at the annual meeting of the Society of Automotive Engineers to be held January 9-12 in New York. "Proper Utilization of Natural Gasoline" is the subject of the paper which Mr. Bayer will read before the fuel section on January 11.



Two Fultons that Decided the Purchase of the Third

Two 550-horsepower Fulton Diesels were installed as power units in a city waterworks in 1914. With a growth of the city that demanded more power, a third Fulton-Diesel of the same capacity was added to the other two in 1916. Today, this Fulton-equipped plant of 1,650 horsepower is one of the largest Diesel-driven waterworks in America.

The Fulton-Diesel has been selected for many other types of installation for just one reason—low cost of reliable power. Simplicity of construction and operation make this cheap, dependable power practicable for all but the very largest stationary plants.

Plant engineers find the Fulton-Diesel ideal to operate and maintain at high efficiency. To assist them in developing the best type of Diesel practice, our supervising engineers make regular visits to all Fulton Diesel installations. All plant engineers interested in Fulton-Diesel operation are cordially invited to visit our shops at St. Louis.

On request from executives and engineers, our latest illustrated book describing the Fulton-Diesel will be mailed free and postpaid. Our staff of engineers is ready at all times to advise on any power problem—anywhere—without charge or obligation.

FULTON IRON WORKS COMPANY, ST. LOUIS, U. S. A.

Successful Engine Builders for 70 Years

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FULTON DIESEL

Gulf Coast Oil Operations

By P. L. McGREAL

When the Amerada Petroleum Company deepened its No. 2 Kishi-Lang, in a section of the Orange Pool, which has been neglected for months, the well started flowing at rate of 4,000 barrels daily. Despite few completions, Coastal production increased nearly 5,000 barrels daily. Shallow sand section of Milam County extended mile north by small pumper.

HOUSTON, Tex., Jan. 1.

The almost complete suspension of work in the pools over the holidays is reflected in the small number of wells completed during the last week of December, but the estimated daily average production shows an increase of 4,947 bbls. over the estimate for last week. A 4,000-bbl. well late in the week in the Orange Pool was the only distinctive feature.

The estimated daily average gross production, including the light-gravity Somerset Field, is placed at 114,137 bbls., compared with 109,190 bbls. last week. The average for each pool is as follows:

District—	Bbls.
Batston	1,020
Blue Ridge	715
Dayton	65
Damon Mound	2,905
Edgerly (La.)	720
Goose Creek	19,175
Humble	6,500
Hull	25,670
Jennings	490
Markham	92
Orange	13,650
Pierce Junction	1,250
Spindletop	770
Saratoga	1,730
Sour Lake	4,700
Somerset and Piedras Pintas	3,300
Vinton	4,850
Welsh and Anse La Bute	95
West Columbia	25,465
Miscellaneous (includes Barber Hill, High Island, Big Creek, etc.	975
Total	114,137

Interest in the Orange Pool was revived late in the week when the Amerada Petroleum Co. deepened its No. 2 Kishi-Lang to 3,925 feet, inserting 20 feet of 3½-inch strainer, and the well started flowing at the rate of 4,000 bbls. a day. The location is about one-quarter of a mile north of the Humble Oil & Refining Co.'s No. 5 Chesson, which came in one year ago at about the same depth and made as high as 20,000 bbls. a day. It was the first big well and the only one in the history of the pool. Other wells drilled in the vicinity quickly went to salt water. That section of the pool has been neglected for months until the Amerada Co. decided to deepen No. 2. The same company has set 6-inch casing in No. 2-B State land, in Cow Bayou, at 3,600 feet and will test. It, too, is an old well deepened. The Gulf Production Co. spudded in No. 3 Winifree, on the west side of Cow Bayou and south of the Sun Co.'s Gunstream lease. The same company has a derrick up for No. 6 Chesson.

The Texas Co. was unsuccessful in its efforts to develop production in No. 1 Sheffield at 906 feet, on the northeast side of the dome at Barber Hill, and is drilling it deeper below 1,100 feet. On the west side, the United Petroleum Co.'s No. 8 Richardson is rated at 250 bbls., with 30 feet of strainer set at 2,220 feet. It is located 1,500 feet north of the recent wells on the Japhet, on the southwest side of the dome. The Humble Oil & Refining Co. worked over No. 9 Smith, in the Goose Creek Pool, and it is good for 100 bbls. at 2,300 feet. The well was completed four years ago.

On the west side of the Hull Pool, the Monarch Oil & Refining Co.'s No. 4 Abel is making 300 bbls. at 1,115 feet, with one joint of 4½-inch strainer set. Its No. 2 Abel, which came in two weeks ago flowing 5,400 bbls., is still putting out an average of 3,000 bbls. each day. No. 3 will be deepened.

The shallow-sand section of Milam County was extended 1 mile north from the Rockdale-Tracy district by Thornton and others' No. 1 Battie, a 2-bbl. pumper at 465 feet. The Owens Refining Co.'s No. 12 Henry is rated at 15 bbls. at 700 feet. That refinery is paying $1.50 for crude in the Rockdale-Minerva section and buyers in the Rockdale-Tracy section are paying $1.75 per barrel.

Outside of the pools, the Sun Co. is drilling No. 1 Guidry at High Island, Galveston County, at 1,160 feet, with derricks up for No. 5 Cade and No. 1 Broussard. The High Island Oil Co. is changing from gas engine to steam at No. 1 Gordon and will resume work next week. In other parts of the county, the Seaport Oil Co. is fishing in No. 1 Le Belle at 5,070 feet, one of the deepest tests in the history of the county.

Eight locations have been made west of Lockhart, Caldwell County, following the completion of the Prairie Lea Production Co.'s No. 1 Merriweather last week at 2,100 feet, estimated good for 100 bbls. swabbing. Cooper, Hitchcock and others' No. 1 Smith, west of Lockhart, is drilling below 1,600 feet. The Fairchild Petroleum Co. has set 6-inch casing in No. 1 Boggs, on the northeast side of the dome, at Stratton Ridge, Brazoria County, at 4,300 feet, and will drill in and test a sand. It offsets the Freeport Sulphur Co.'s No. 9 Dannebaum, which flowed 1,200 bbls. for a day and then sanded last May. The hole has never been recovered, although it has been constantly worked on. The formations in the Boggs test are said to be running 20 feet higher than in the Dannebaum test. The Fairchild Petroleum Co. is deepening No. 6 Seaburn, on the east side of the dome, taken over from the Humble Oil & Refining Co.

A report from La Salle County states the Bishop Land Co. found 24 feet of oil sand while drilling a water well for the new townsite, at 2,700 feet, and will stop and test it out. It is located 18 miles west of Cotulla, a town on the International & Great Northern Railway, between San Antonio and Laredo. The Palmetto Petroleum Co.'s No. 2 Lacey, in the northwestern corner of Nacogdoches County, is shut down at 2,350 feet, waiting on fuel. It is planned to drill to 3,200 feet.

The south Louisiana parishes are getting a play from the wildcatters. Hampton and others are below 2,300 feet near Toomey. Another test is drilling at Grand Chenier, near Lake Arthur, and the Yount-Lee Oil Co. is drilling at Hackberry, Cameron Parish. The Humble Oil & Refining Co. has a location at New Iberia, Iberia Parish.

Southwest Districts

In the Somerset light-gravity field, the Grayburg Oil Co. finished No. 3 Tex-Carruthers, Nos. 13 and 14 Hartung, No. 5 Byrom, and No. 8 L. F. Heickman, all rated at from 5 to 8 bbls. each. The best well is the Empire Gas & Fuel Co.'s No. 2 Carruthers, good for 15 bbls. No. 7 Ernst is good for 8 bbls. The Grayburg Oil Co. is drilling No. 17 G. W. Carruthers, No. 9-B Hartung, No. 12 Muennick, No. 8 Illa-Carruthers, No. 4 McClain. It has rigs up for No. 10 Hartung, Nos. 9 and 10 Heickman, Nos. 9 and 10 Byrom, and No. 13 Muennick. The Gulf Production Co. is bailing No. 7 fee. Schimmel & Cohas started No. 6 Miller, and Bashara and others No. 2 Swearengen. Leach and others are swabbing No. 1 Wren.

In the Webb County districts, in addition to those completions already mentioned, the Dixie Oil Co. finished No. 4, Survey 460, good for 100 bbls. The Relado Oil Co. is testing a sand at 1,220 feet in No. 1 Kanoka. The Johnson-Memphis Oil Co. is bailing No. 1 in the western part of Jim Hogg County, at 2,060 feet, compared with the sands at 1,400 to 1,700 feet in Webb and Zapata Counties.

Drilling in the Pools

The Southern Petroleum Co. is preparing to drill in No. 5 Bryan, on the southwest side of the dome at Damon Mound, around 3,440 feet in sand and shale showing considerable gas pressure. Eighty feet of strainer will be set. The bit drilled through more than 1,000 feet of hard rock, or more of that formation than was ever before found in a well on that side of the dome. The Hyde Production Co.'s No. 1 Wisdom is below 3,600 feet and No. 2 Kittrell is below 2,390 feet. The Sinclair Oil & Gas Co. has five rigs going there and another starting.

At West Columbia, the Wichita Petroleum Co.'s No. 2 Helms has sanded. It came in late last week at 3,445 feet flowing 4,000 bbls. It is on the northwest side of the dome. On the same side, The Texas Co. is reaming No. 8 Abrams, with the bottom of the hole at 4,265 feet, and clearing No. 9, which sanded 2,600 feet of the hole. No. 9 Arnold is working over at 2,860 feet, and No. 79 Hogg is fishing at 3,885 feet. The Humble Oil & Refining Co. is working over and fishing in No. 3 Bashara. It is also working over No. 12 Japhet. The Crown Oil & Refining Co. is working over No. 1 Marmion. The Atlantic Oil Producing Co. set liner in No. 1 Wilson and is now trying to pull it to drill deeper from 3,325 feet. The Texas Co. has 16,550 bbls. of the total production in the pool.

Harris County Pools

In the Humble Pool, The Texas Co. has three wells on the Koehler lease making 2,200 bbls. of the total output. No. 16 is flowing 700 bbls., No. 24 is making 400 bbls., and No. 33 is flowing 1,100 bbls. The company is working over Nos. 199 and 252 on the Landslide and also No. 10 Wheeler-Pickens. The Humble Oil & Refining Co. is working over No. 1 W. & P. The Thomas Oil Co. is drilling No. 2 Bender on the northwest side and the Southern Petroleum Co. is working over old holes on its Landslide lease.

In the Goose Creek Pool, the Humble Oil & Refining Co. abandoned No. 1-A Isenhour, on the west side of the creek, at 4,590 feet. It is bailing No. 17 Sweet at 3,450 feet after deepening. No. 2-A Isenhour is below 4,400 feet. No. 26, on the peninsula, is below 4,235 feet. Old holes are being worked over on the Schilling and Smith leases. The Gulf Production Co.'s No. 1-A Hirsch, in the bay, is below 4,435 feet, and No. 1 Hirsch, State land, is drilling around 3,450 feet. No. 1 San Jacinto Bay is below 2,350 feet. No. 5 Chapman-Bryan and No. 12 Drillers are rigging, as is No. 27 Beaumont Petroleum Co. The Gulf Coast and Crown Oil & Refining Co.s' joint No. 37 Galliard is below 4,425 feet. The Blue Bird Oil Co. is working over No. 3 Jones and No. 1 Adey. The tests on Atkinson and Spillman Islands are both shut down.

At Pierce Junction, the Sun Co. is bailing No. 1 Whitehead at 3,400 feet, on the north side of the dome, and the Humble Oil & Refining Co. is deepening No. 4 Fitzsimmons from 3,900 feet, where it bailed salt water. On the east side, the Gulf Production Co.'s No. 13 Taylor is below 4,350 feet. In the Blue Ridge Pool, over across the line in Fort Bend County, Neils Esperson Estate is drilling No. 2 Ewing below 2,860 feet, on the southwest side of the dome, and the Sinclair Oil & Gas Co. is working over No. 1 Lee, on the east side. In the Sour Lake Pool, the Gulf Production Co. is bailing No. 51 Hardin-Tarver at 2,370 feet. The Texas Co. is working over No. 238 fee and drilling No. 300 fee at 2,220 feet. Rigs are in for the Lake View Oil Co.'s No. 29 Morrison and United Fuel Oil Co.'s No. 6 Moore.

Hull Pool

On the north side of the dome, at Hull, the Higgins Oil & Fuel Co. set 6-inch casing in No. 1 Merchant at 3,025 feet, and is now drilling in sand at 3,130 feet. The Yount-Lee Oil Co.'s No. 5 Merchant is at 3,700 feet and No. 1 Rivier is deepening at 2,345 feet. The Mecum Oil Co.'s No. 1 is below 3,156 feet. The Gulf Production Co. is working over No. 9 Scarborough and drilling No. 18 Morris-Phillips at 2,900 feet. On the west side, Bissonett & Giescke's No. 2 Canter is below 780 feet, and the Crown Oil & Refining Co.'s No. 2 Abel at 2,000 feet. The Humble Oil & Refining Co.'s No. 3-A Abel is at 1,987 feet, No. 4 at 345 feet, and No. 5-B at 1,987 feet. The Gulf Co.'s No. 8 Hannah is below 2,435 feet, No. 9 around 2,786 feet, with a derrick up for No. 10. The Houston Production Co.'s No. 4-B Abel is at 2,345 feet, and No. 6 below 1,650 feet.

On the east side, the Republic Production Co.'s No. 47 Dolbear is deepening at 2,965 feet, and No. 18, a workover, is showing oil at 1,456 feet. The Champion Oil Co.'s No. 1-A Phoenix is below 1,000 feet. On the south side, the Empire Gas & Fuel Co.'s No. 15 Barngrover is below 1,645 feet. The Humble Oil & Refining Co. is rigging No. 4 Hooks-Spells and No. 17 Guedry. The Sun Co. is bailing No. 4 Carr at 2,260 feet. The Hull Pool is the only district with production on all four sides of the dome.

In the Vinton Pool, east of Orange, in Calcasieu Parish, Louisiana, Marrs McLean's No. 1 Gray is a 60-bbl. well at 1,820 feet. The Texas Co. has a 60-bbl. well in No. 11 Vincent at 2,300 feet and is bailing No. 18 Gray at 2,315 feet. In the new northwest section, the Tanner Oil Co., is bailing No. 1 Vincent at 4,130 feet, and the Just Oil Co. bailed dry at 3,970 feet after plugging back from 4,050 feet. Wilson & Tucker's No. 4 Parks is working over at 2,300 feet. The Gulf Refining Co. is below 900 feet in No. 27 Star and is deepening No. 56 G. N. G. and No. 1 Vincent. The Vinton Petroleum Co.'s No. 31 Gray is below 2,345 feet and No. 36 is around 2,087 feet. The Texas Co. is drilling No. 16 Vincent at 476 feet. The Coastal Oil Co. has locations for No. 2 and 3 Hunter, in the Edgerly (La.) Pool.

Barber Hill

The Texas Co. set strainer Saturday in No. 2 Barrow, on the southwest side of the dome at Barber Hill, in Chambers County, Texas, at 3,038 feet, and is bailing. On the same side, the Humble Oil & Refining Co.'s No. 1 Blaffer & Farish is drilling below 3,190 feet, and No. 2 is

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shut down at 2,550 feet. The Barber Hill Oil Co.'s No. 1 Chambers County Land Co. is below 1,500 feet. S. J. Hindman has started No. 1 Collier and is below 2,435 feet in No. 1 Z. Fisher. Neivel and others' No. 1 Richardson is below 2,010 feet. The last two are higher up on the dome, near the well of the United Petroleum Co., on the Richardson.

Coastal Wildcats

In Harris County, Hardin & Carmichael's No. 1 Peterson, 4 miles north of Crosby, is in lime and shale at 2,140 feet. The Industry Oil Co. cored No. 1 Singleton, near Sheldon, at 1,800 feet. The Monarch Oil & Refining Co.'s No. 1 Hautier is setting 6-inch casing at 2,920 feet. It is east of Green's Bayou and is showing considerable gas. The Freeport Sulphur Co. abandoned No. 9 Dannebaum at Stratton Ridge, in Brazoria County, at 4,370 feet. The Pearson test, west of Corpus Christi, is showing gas.

Milam County

Guiberson and others' No. 1 Posey is below 3,640 feet, near Cameron, in Milam County. In the shallow-sand sections, the Cyle-Colcord Oil Co. is drilling in No. 7 Neahaus, No. 8 is below 640 feet, and No. 9 is just started, with locations for seven more. The same company's No. 4 Lucas is below 600 feet, with locations for eight more. Fritz Fuch's No. 2 Henry is below 400 feet. The Lee-Haus Oil Co.'s No. 8 Neahaus is at 575 feet, and No. 9 is rigged. The Owens Oil Co. has started No. 13 Henry. Milam County Oil Co.'s No. 1 Henderson is at 800 feet. White and others' No. 1 Baker is below 415 feet. Hefley and others have started No. 7 Henry and the Tidal Oil Co. has a rig for No. 12 Roundtree. Taylor Brothers spudded in No. 1 Gilland and shut down No. 12 Henderson. An even dozen rigs are shut down.

West Kentucky-Tennessee

By VERN T. WHITNEY

Hinton & Houghton completed their No. 5 G. R. Dearing, in the Keen Pool, good for 35 barrels at 115 feet. Hutchens Oil Company brought in its No. 3 on Pitcock lease, Barren County, Ky., making 25 barrels at 477 feet. Farmers Oil & Gas Company's No. 1 Speck, in Warren County, reported dry at 1,400 feet. Test in State of Mississippi encountered 16 oil bearing sands.

BOWLING GREEN, Ky., Jan. 1.

Although development work has been rather quiet on account of the holiday season in the western Kentucky fields, a number of drilling contracts have been let and several new locations have been made in both Warren and Allen Counties. Eleven rigs are moving on locations in Allen County, and about six in Warren County. The Carter Oil Co. is moving a rig to the Lawrence lease, located in the northwest extension of the Davenport Pool, while the White Oil Corporation has made a location for its No. 11 on the J. T. Scott lease, which adjoins the R. L. Morris and Davenport leases of the Big Jack Oil Co., and the J. Harve Martin of the Atlantic Oil Producing Co., located in the Davenport Pool. So far this company has nine producers and one duster on this lease.

In Allen County, the Interior Oil Co. is moving a rig to the Roy Ritchie lease, north of the Gainesville Pool, where locations have been made for several wells. R. E. Cope has moved a rig to the Dan Ewing farm, adjoining the Ritchie, where he already has several good producing wells. The Kentucky King Syndicate has spudded in its No. 4 on the E. Ritchie, where it has three small producers. Tulsa interests have started No. 1 on the R. S. Whitney lease, at Gainesville. In the vicinity of Pope, Roark & Newell spudded in No. 1 Ballard and made a location for No. 2. Fielder and associates are spudding in No. 1 on the Widow Dodson lease. These same parties are moving a rig to the Porter lease, in eastern Warren county, adjoining the Martin lease, owned by Lewis J. Emery, Jr., & Sons, on which No. 5 is spudding.

During the week, E. A. Fordyce & Co., of Boston, purchased the A. Poe 25-acre lease, with one well, in the Satterfield Pool, west of Scottsville.

In Warren County, J. A. McCandless, of Pennsylvania, purchased a one-sixteenth royalty in the J. W. Lowe 150 acres, being operated by the Miami Oil & Gas Syndicate and the New Domain Oil Co. This lease is located in the northeast extension area of the Waller-Runner Pool.

Hopkins County Well Shot

The well drilled on the Williams lease by the Linton Oil & Gas Co., near the town of Nortonville, Hopkins County, was shot with two 10-quart shots at 2,055 to 2,063 feet, and after the first shot the well stood for three hours, when 1 bbl. of oil was bailed out. The total depth of this well was 2,130 feet. It is reported that No. 2 location has been made and that drilling will be started after the New Year.

In Warren County, during the week in review, the Farmers Oil & Gas Co.'s No. 1 Speck, located in the Reeves district, to the west of the Waller-Runner Pool, was reported dry at 1,400 feet. This test was located 2,000 feet west of this company's small well on the Flora farm and will partly condemn this district. The Martsolf Fuel Oil Co.'s No. 1 on the M. Reeves is shut down on top of the sand, with only a slight showing of oil. In the Davenport Pool, the Crump Oil Co. completed the only well for the week in its No. 5 Hill, which is good for a 10-bbl. pumper at 989 feet. The top of the sand was found 72 feet below the shale, and the bottom at 985 feet. In the Rockfield shallow district E. C. Caskey got a 25-bbl. flush producer in his No. 1 W. R. Price, at 450 feet, with 13 feet of pay. On the Freeman lease, being operated by the Wellington Petroleum Corporation, No. 4 is dry at 290 feet. The other three wells on this farm all came in for good flush producers in this shallow sand. The well cannot as yet be classed as a completion, as it will be drilled deeper. On the Irving lease, the Hunt Oil Co. got a gusher in its No. 1 well at 490 feet.

In eastern Warren County, Lewis J. Emery, Jr., & Sons completed their No. 4 Martin for a 6-bbl. pumper at around 500 feet. The well drilled on the Goodrich lease by Lawrence and associates is classed as a 10-bbl. pumper at around 280 feet.

Allen County

Allen County shows a number of fair pumpers for the week in all sections. The operators in this district have been very well pleased with the outcome of most of the wells which have recently been drilled and are making preparations for a large drilling campaign to start shortly after the first of the year.

In the Gainesville district, to the north of Scottsville, Szafanski & Vogle's No. 3 Fishbeck is reported for a good 10-bbl. pumper at 318 feet. The first sand was encountered at from 220 to 255 feet and the second from 304 to 310 feet. Geer Brothers' No. 1 R. Reed 25 acres showed for 5-bbls. at 325 feet; Reed & Co.'s No. 1 Tracy, 5 bbls. at 320 feet; Moore & Co.'s No. 1 L. Hinton, 10 bbls. at 258 feet; Borah and others' No. 6 Grubbs, 5 bbls. at 305 feet; Bert Christian and associates' No. 2 J. T. Johnson, 2 bbls. at 276 feet, after a 60-quart shot. On the Ritchie lease, recently purchased by the Kentucky-King Syndicate, a number of new locations have been made which will be drilled up immediately. This lease lies 1½ miles south of Settle, in the Gainesville district. The company completed its Nos. 1, 2, and 3, good for 3, 5 and 4 bbls., respectively, at 362, 369 and 364 feet. These wells are drilled 48 feet below the shale and found an average of 11 feet of pay.

In the Keen Pool, about 12 miles southwest of Scottsville, Hinton & Houghton completed their No. 5 on the G. R. Deering lease, good for 35 bbls. flush at 115 feet. In the No-Name Pool, 4 miles southwest of Scottsville, W. A. Henson completed his No 17 on the Lewis farm good for 20 bbls flush at 265 feet, while C. A. Hice got a duster in his No. 3 on the R. Mitchell second farm at 385 feet.

In the Satterfield Pool, near Allen Springs, the Peter Oil Co. completed No. 12 on the Satterfield lease for a 15-bbl. pumper at 475 feet. On the Goodrum lease, being operated by Sam Bradshaw, No 2 was finished at a depth of 507 feet for a 4-bbl. pumper. Shale was found from 379 to 431 feet, first sand from 441 to 464 feet, and the second sand from 482 to 505 feet. This lease is one-half mile northeast of the Satterfield property. One-half mile east of Scottsville, Lamlein & Hahn got a duster in their No. 6 Turner at 297 feet.

Barren County Well

The Hutchens Oil Co. of Bradford, Pa., completed its No. 3 on the Pitcock lease, south of Glasgow, good for 25 bbls. flush at 477 feet. The top of the sand was found at 470 feet. On tapping the sand this well flowed considerable oil, which caught fire and burned the rig, causing considerable damage.

It is reported that the Big Bend Petroleum Co.'s No. 1 on the George Bales farm came in dry at a total depth of 1,086 feet. This well was drilled in the Mt. Pleasant district of Daviess County. In Ohio County, the well drilled on the Vogles farm by Daugherty & Backer made one-half barrel at 762 feet. The test drilled by the Wood Oil Co. on the Jordon farm in McLean County is reported dry at 1,515 feet. The Eastern Gulf is drilling at 850 feet in its No. 1 E. S. Randall and the Petroleum Extraction Co. has spudded in on the W. L. Hayden farm.

Mississippi Wildcat

The well drilled on the J. C. Jourdon lease by the Iuka Development Co., located in the SW cor. N half SW, Section 9-4-11e, about 5½ miles southeast of the town of Iuka in Tishomingo County, Mississippi, encountered 16 different oil bearing sands down to a depth of 1,902 feet which will soon be tested. The black lime was encountered at a depth of 876 feet and passed out at 1,077 feet, making 201 feet. In this formation 135 feet of oil bearing sand was passed through which showed a thorough saturation of a paraffin base oil. Besides the black lime formation, there were several other oil bearing sands encountered in the brown lime above and below the black lime. Black sulphur water was encountered at 1,722 feet and two other oil bearing sands were found below this water, the first at 1,744 to 1,751 feet and the second from 1,787 to 1,795 feet. Each of these sands showed an abundance of light oil, but were not tested. From 1,795 to 1,902 feet a gray brownish lime was found with a paraffin residue all through it which was much thicker at the bottom than it was found to be at the top.

In trying to test the sand at 1,744 to 1,751 feet the casing broke 129 feet from the bottom and, as it had an 18-inch hemp rope packer on the bottom joint between the black sulphur water and the oil bearing sand, it could not be removed. The well was then plugged back to 1,228 feet trying to shut off the water from the upper sands, but water is still coming in. The company will make another attempt to shut out the water by cementing and other methods and then shoot the black lime and sands.

Completions recorded in Mississippi show two dusters in Jackson County. The Great American Oil Co.'s No. 1, drilled near Americus, and the Georgia Oil Co.'s No. 1 Watterman, which was drilled to a total depth of 2,508 feet. One abandoned hole is also reported in Panola County in District 35-27-2e, on the Lamb farm for the Panola Oil & Gas Co. at a depth of 565 feet on account of a lost hole.

A list of tests either drilling or shut down in Mississippi as reported is as follows:

Chickasaw County. — Harley Development Co.'s No. 1, near Houston, drilling.

Copiah County.—Marshall O. & G. Co.'s No. 1, near Crystal Springs, drilling; B. H. White's No. 2 White, Section 15-1-3w, drilling.

Clay County.—Gulf Development Co.'s No. 1, near West Point, drilling.

Hinds County.—Benninger & Beach's No. 1 Elton, shut down at 1,400 feet; Benninger & Beach's No. 2 Elton, shut down at 1,475 feet.

Jefferson County. — Manhattan-Texas No. 2 Truly, shut down at 1,150 feet.

Jackson County.—Jackson Oil Co.'s No. 1, near Utica, shut down.

Lafayette County.—Kimsey & Co.'s No. 1, near Oxford, shut down at 600 feet.

Lowndes County. — Anderson Drilling Co.'s No. 1 Billups, shut down at 2,040 feet.

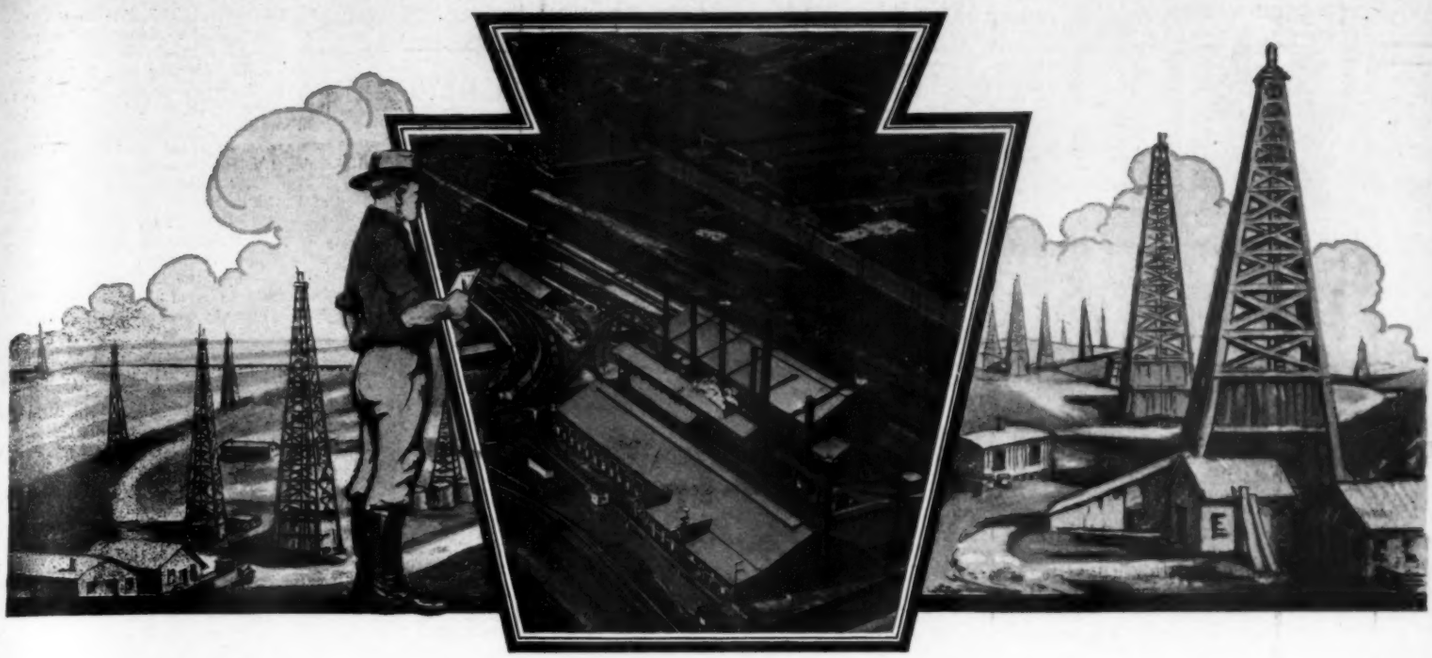
Lincoln County. — Anderson Drilling Co.'s No. 1, near Hartman, shut down.

Pike County.—Gulf Drilling Co. (Inc.) No. 1 Cupit, drilling.

Washington County.—Alhambra O. & G. Co.'s No. 1 Williams, shut down at 2,000 feet with show of oil.

TANKERS FROM CALIFORNIA

LOS ANGELES, Cal., Dec. 29.—The tanker Sabine Sun, with a cargo of approximately 70,000 bbls. of crude, sailed for Philadelphia, presumably for the Sun Oil Co. On the same day four tankers left the local port with a total of 261,228 bbls. of crude for the Associated Oil Co.'s refinery at Avon, while the Shell Oil Co. made one shipment of 77,704 bbls. of crude to their Martinez refinery, and the General Petroleum Co. dispatched a tanker with 63,000 bbls. of fuel oil to San Diego. The total shipments for the day were 401,932 bbls.



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Fields of the Central West

By WHIT

The Sun Company has a 120-barrel crevice well in Seneca County, Tiffin Field, Ohio, and the Ohio Oil Company completed a 65-barrel well in Allen Township, Hancock County. Long overlooked territory in old Lima Field will be developed. Quiet in Indiana and Illinois. Eastern Kentucky shows some results and active preparations for new work.

FINDLAY, Ohio,
Jan. 1.

The leading well of the week in the Central West fields was brought in by the Sun Co., on the W. S. Burns farm, northeast quarter of Section 16, Eden Township, Seneca County, in the Tiffin Field of northwestern Ohio. This well found the top of the sand at 1,669 feet and drilled into that formation 282 feet to the total depth of 1,951 feet, the well producing 120 bbls. This well naturally extends the producing area a short distance. It is a crevice well and is expected to maintain a good production for a long time.

Wells in this field have been producing steadily for more than 30 years, and are still on the pump and the owners can figure ahead what their production is from day to day, as it varies little when once settled.

The next best completion of the week in the old Lima Field, was made by the Ohio Oil Co., when it drilled in its No. 8 on the Z. U. Kneke, in Section 24, Allen Township, Hancock County, for a production of 65 bbls.

One of the interesting pools in the Lima Field at this time is that centered along the line of Mercer and Darke Counties, in Mississinewa and Allen Townships, Darke County and in Gibson and Granville Townships of Mercer County. Another area attracting attention is that along the Paulding-Van Wert County line. Both these areas were known to be producing territory many years ago.

Indiana Field

The Indiana Field has a few completions, in the old Trenton Rock section and while not large, they are well worth the going after. In Bear Creek Township, Jay County, the Shamrock Oil Co. drilled a 20-bbl. pumper in No. 5, Ada M. Mulier, Section 2. In Penn Township, Manor, Stewart & Jones drilled in a 5-bbl. pumper in No. 6 J. W. Jones, Section 27, and Willson & Gemmill got one of the same production in No. 3 Mary Grissell, Section 25, and in the old Camden district, Heeter and others are drilling No. 1 Charles Grissell, Section 13, and Willson & Gemmill are drilling a test on the J. S. Bunker, Section 28. In Pleasants Township, Grant County, the Central Exploration Co.'s No. 6 Ira Whitlock, Section 4, pumped 25 bbls. In Salamoine Township, Huntington County, A. E. Harper's No. 4 Dr. Benifield, Section 19, pumped 25 bbls. and No. 5 is drilling. March Petroleum Co.'s No. 2 on its own land, Section 20, pumped 5 bbls. Say and others are drilling a test on the H. Fudge, Section 30, Liberty Township.

In Center Township, Delaware County, Green and others drilled a dry hole in a test on the John McConnell, Section 20.

Illinois

No new completions are reported from the older sections of the Illinois Field, for the holiday week. Word comes from southwestern Illinois, from the Bradley Township, Jackson County section of the Ava Field, that No. 3 well on the Ditch farm, made a nice showing from the 800-foot level, and a shot may develop another producer for this lease. Nine feet of oil sand was encountered in No. 3 as compared to 13 feet in No. 1, indicating lesser production. In the south well, No. 4 no showing was had at the level of the three other wells on the farm, but this sand is not uniform, but runs in lenses; the 900-foot sand, however appears to be more of a blanket formation, and No. 4 will be sent down to that 900-foot sand, which has proven a heavy gas producer in other sections of the field. The report is that the Geberdene 160 acres located about three-quarters of a mile southwest of the Ditch lease, on a 45-degree line, will be tested again. It was on this farm that a nice showing of oil was had in the Upper sand and salt water encountered in the underlying sand. A second well gave a showing of oil and then encountered the salt water sand. Had these wells been put on the pump and the salt water exhausted, there is little doubt that the Ava Field would have been discovered years ago. Should No. 4 well on the Ditch lease prove a dry hole, it does not condemn any large area around it or in the Ava Field. In fact, it is very similar to conditions in the western Kentucky fields. A dry hole and a producer are very frequently found close together, and this has been demonstarted in the Ava-Campbell Hill gas field.

Eastern Kentucky

Very little news comes out of the eastern Kentucky fields for the week, due in the main to the heavy snow and the weather conditions which prohibit almost entirely the getting over the fields, especially in the Johnson-Magoffin end, and many wells that were due for completions are idle. The most activity in the western division is centered around in the various pools in Cumberland and Monroe Counties in the southern section of the field.

The Louisa News states that Tom Hays has drilled in a wildcat well on the Ellis Furgeson farm on the lower branch in Morgan County, just over the line from Lawrence County. A good showing of oil is reported in two Weir sands and in the Berea. The first Weir sand produces gas, which indicates an important extension of the Keating Field. In the Red Bush district of Johnson County, McIntyre and others brought in a 2-bbl. pumper in a test on the Chas. Williams farm. George & Touma in the same vicinity drilled in a 5-bbl. well in a test on the H. C. Franklin farm. The Pie John Oil Co., struck a nice gas well in a test on the Franklin heirs farm. R. G. Gillespie's No. 3 Darius Conley shows a production of 15 bbls. and his No. 3 J. M. Kimbleton, 25 bbls. while No. 1 Lee Kimbleton, was a dry hole. No. 4 has been located on the J. M. Kimbleton lease. The Big Five Petroleum Co. is drilling No. 2 Lee Owens lease, being well satisfied with No. 1 which is reported a 20-bbl. well. The Union Gas & Oil Co. is drilling No. 3 Henderson Skaggs lease, and T. J. Tonkin and others are doing the same at their No. 4 Isaac Williams lease. M. W. Larkin is drilling No. 1 George Salyer lease. The Red Rush district is among the most prosperous oil sections of Johnson County at this time and its daily production is gradually growing, and only a few months ago the field had no production of any account.

Cumberland-Monroe Counties

Everything looks pleasant for a winter season's development of the fields of Cumberland and Monroe Counties. The first boat of the season down the Cumberland River and wharfed at Burkesville, brought a car load of tanks for the Parkersburg Rig & Reel Co., and was heavily laden with all kinds of oil well supplies. If the weather does not become extremely cold, work will continue in both counties.

McComas & Co. are rushing work on the two-story brick structure on the west side of the square at Burkesville and expect to have every detail completed this week. This will house the National Supply Co., Illinois division. The store and supplies will be under the guidance of Charles Asdell, who already has quite a large amount of supplies to take care of the trade until a full line arrives.

The Paragon Development Co. is running oil through its line from the Sulphur Creek Pool, to its tank farm at Neeley's Ferry. This line to the Bear Creek Pool, is almost completed and will then give that pool an outlet for its crude. and following that it is the intention of the Paragon to lay a line to the Kettle Creek Pool, in both Cumberland and Monroe Counties. The Paragon is starting its second well on the Capps lease, No. 1 is a paying pumper.

Col. W. S. Raydure is drilling No. 2 F. F. Smith, across the river from Burkesville. His No. 2, on the Blythe lease, is reported as making a good showing and he is drilling on the Dave King lease. Due to the high water that prevails over parts of the field, the Daniel Boone Oil Co. was compelled to shut down drilling at its No. 2 Wix Donaldson lease. This company's No. 1 Squire Logan lease on Kettle Creek is due for completion.

The McClintock Oil Co.'s No. 4 George W. Coop Jr., is another well that is due for completion. It is in the Sulphur Creek district.

The Pederson Oil Co. is drilling No. 1 Kin Crawford lease, just above the Kerr lease in the Kettle Creek district. This company is also moving drilling machines onto the Lolar and Humes leases. E. J. Schabalitx Oil Co. is drilling No. 1 G. W. Burchette lease a mile or so above Burkesville and down to a depth below 725 feet, but expect to encounter the good pay sand at around 800 feet.

In Lee County, Thomas Scott and others' No. 3 W. B. Hobbs, is estimated at 5 bbls.; Miles Bros. Drilling Co.'s No. 4 Miles McIntosh, estimated at 10 bbls., and J. H. Sallee's No. 7 Lucy Watkins lease, estimated at 40 bbls.

Cumberland Pipe Line Runs

The runs of the Cumberland Pipe Line Co., through its lines for the week ending December 16, amounted to 81,570.70 bbls., for a daily average of 13,595.11 bbls., and for the week ending December 23, the week's runs were 84,000.51 bbls., for a daily average of 14,000.08 bbls.

Additional Kentucky Wells

In Johnson-Magoffin Field, the Southwestern Petroleum Co.'s Nos. 30 and 31 Green Rice, produced 5 and 4 bbls. Carter Oil Co.'s No. 8 M. Wheeler, produced 6 bbls. Boyd Oil & Gas Co.'s No. 8 James-Love farm, 4 bbls.

Pennsylvania-West Virginia

By D. S. WAKENIGHT

PITTSBURGH, Pa.,
Jan. 1.

The old year closed auspiciously in the Eastern fields as the Joseph Seep Agency on December 30, advanced Pennsylvania Cabell and Somerset light and heavy, 25 cents each, making Pennsylvania crude $3.25, Cabell $2.11, Somerset light, $2.15 and Somerset heavy, $1.90.

The $3.25 price for Pennsylvania crude, while appreciated, is still considered too low, and it will take a higher market to stimulate drilling to an appreciable extent. During the year 1922 the Tidioute Field in Warren County, Pennsylvania, stood out as the only one in the East which had had an extensive development. The discovery of the Queen sand with its high saturation of petroleum, started a drilling campaign that resulted in a considerable increase in the high grade crude produced in the State of Pennsylvania, but the pool is not a large one in area, and when compared with other older eastern pools, fades into insignificance.

Carnahan's well on the Jennings farm in the Tidioute district drilled deeper and started at 250 to 300 bbls. Carnahan's No. 13 Siggins, about 400 feet below Siggins Station, on the river bank, came in at the rate of 500 bbls. or better.

The most important deep test to get down to an unusual depth during the year and still in the limelight, is the Peoples Natural Gas Co.'s well on the Seger Bros.' farm near Ligonier, Westmoreland County, Pa. The well is located on Chestnut Ridge, high up in the Allegany Mountains and a short distance from a deep test drilled by the same company two years ago. The Seger farm test is now drilling 20 feet below the depth at which they expected to get the sand. At 6,817 feet they are drilling in soft black formation, similar to that found in the first deep test, and are still hopeful that they will get the sand formation and a flow of gas. The first well drilled got its gas at a total depth of 6,822 feet. No other well in the eastern fields was drilled to so great a depth during the year.

During the past week, the southeastern Ohio fields completed but two fair producers. Both are Clinton sand wells, located in Hanover and Hopewell Township, Licking County. When the E. H. Everett Co. drilled its No. 3 on the J. J. Simpson farm, through the sand and gave it a shot, it did not have gas enough to make it flow, but it swabbed 107 bbls. the first 24 hours. It is located in defined territory. In Hopewell Township, I. I. Hazlett & Co.'s No. 3 is a 50-bbl. producer.

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Fewer New Producers

In the deep territory in Hopewell Township, Licking County, Ohio, the Carter Oil Co. got a fair gas well when it drilled its important test on the Edith Bay farm, through the Clinton sand.

There is little or nothing doing in the way of wildcatting in the southeastern Ohio fields. Now and then a well is completed in advance of some of the old pools, hoping for the discovery of an extension. In some of the old shallow sand districts wells have been drilled down with a view to getting production in the Clinton sand, but so far all have proved failures, if located outside of the present producing area.

Southwest Pennsylvania operators are having a hard time finding new production. Thirty wells were completed during the month and the total new production amounted to 92 bbls. In the face of this disparaging showing operators continue to drill. It will require years for most of the wells to pay back the money invested.

West End Completions

In rounding out the week of development work, light wells were the best any section of the eastern fields had to offer. On the divide between Slab Run and Leading Creek, Sheridan district, Calhoun County, W. Va., located a half mile east of the Hope Construction & Refining Co.'s test on the G. W. Frederick farm, the Chemical Oil Co. has completed its test on the Miller heirs' farm. It is showing for a 3 to 5-bbl. pumper in the salt sand. This location is territory that had not been previously tested.

In Ellsworth district, Tyler County, G. E. McCutcheon has completed his test on the B. Spencer farm. It is a small pumper in the Maxon sand. In McElroy district, the Manufacturers Light & Heat Co., is due in the Gordon sand. In the same district, the Carnegie Natural Gas Co. is due in the same formation at a test on the Mary M. Anderson farm. On Bell Run, Sheridan district, Calhoun County, the Southern Oil Co. has drilled No. 18 on the Baker-Baughman farm into the Big Injun sand and showing for a good gasser.

In DeKalb district, Gilmer County, the South Penn Oil Co. has completed a second test on the J. J. Hardman farm, It is located 700 feet northeast of the Hope Construction & Refining Co.'s test on the Baker farm and is a good gasser in the Big Lime formation. In Freeman's Creek district, Lewis County, the Leading Creek Oil & Gas Co.'s test on the Skidmore-Lamb farm, is a fair gasser in the Big Injun sand. In the same district, Warner & Smith have the same kind of a gasser at a test on the L. M. Bailey farm.

Located in Center district, Wetzel County, the Manufacturers Light & Heat Co. has drilled a test on the Thomas Little farm into the Gordon sand and showing for a very light gasser. In the same district, the Hope Natural Gas Co. has a Big Injun sand gasser at a test on the C. E. Brown farm.

Starting Tests

In Grant district, Hancock County, John Herron & Co. have the rig completed for a test on the John Herron farm. In Cross Creek district, Brooke County, the McKim Oil Co. has a rig completed on the McKim sisters' farm. In McClelland district, Doddridge County, Trainer & Ash are due in the Gordon sand on the Freeman-Smith farm. In the same district, the Carnegie Natural Gas Co. is due in the same formation at a test on the John and Mary Stackpole farm.

Southeastern Ohio

The southeastern Ohio fields had very few completions at the close of the week. In Rome Township, Athens County, L. Stephens got a light gasser at his No. 18 on the Jennings Coal Co.'s property. In Aurelius Township, Washington County, the Bell Oil & Gas Co.'s No. 3 on the Hanson Durron farm is dry in all sands.

News of Mexican Oil Fields

By GEORGE BLARDONE

The Texas Company brought in 10,000-barrel well in Paciencia de Aguacate sector of Topila Pool at depth of 2,084 feet, making it shallowest pay well in that sector. Mexican Eagle Oil Co.'s No. 4 Perez, Lot 161 Chinampa, is 3,000-barrel fluid producer, 50 per cent salt water. Marland subsidiary's No. 6 Limon in Marland Field, good for 75 barrels.

TAMPICO, Mex., Dec. 29.

The surprise of the week occurred in the Paciencia de Aguacate sector of the Topila Pool, where The Texas Co., in its No. 1, Lot 35, scored a 10,000-bbl. well at the very shallow depth of 2,084 feet. The well is considered good for the production noted despite the fact that the tools are in the hole. The gas pressure is such that the well will be connected up immediately to field storage and when the pressure is reduced by exploitation the tools will be fished out if it is then thought advisable.

This No. 1, Lot 35, is located about the center of the lot, which in turn is about the middle of the Paciencia de Aguacate sector which lies north of the river in the shape of a peninsula owing to the sweeping bends of the Panuco at this point. It is the shallowest well ever drilled in any sector of the Topila Pool, where pay depths were uniformly deeper than in the Panuco Pool further west.

Over in Lot 5, northwest of this Lot 35, Cia. Pet. Financiera No. 1, which was drilled in for 1,000 bbls. on October 23 at 2,365 feet (oil from 2,260 feet), has blown its gate valve off and is running wild. There is considerable gas pressure extant in this test also and it is making quite a display.

Mexican Eagle Oil Co.'s No. 4 Perez, Lot 161 Chinampa, a test drilled in stripper territory as an offset to Cias. del Agwi's rather prolific stripper in Lot 159 Chinampa, is called a completion at 2,101 feet. It is a 3,000-bbl. fluid well, 50 per centum salt water. An attempt will be made to strip it of a little free oil through a choker. In this connection, Mexican Eagle's No. 16 Cerro Veijo, which has already been reported as a 10,000-bbl. fluid well, has not yet been connected up with a choker so whether it will be good for any marketable production remains to be seen.

In Cabo Rojo, Cia. Pet. de Tepetate, No. 1, Lot 21, is a confirmed failure at 2,970 feet, where the drill stopped in the Alazan shales following a twist off that left 1,800 feet of 6-inch drill pipe in the hole. This is being fished out now and the test, it is officially stated, will be drilled to a little over 3,000 feet and abandoned. This was the test succinctly described as: "A wildcat, the wildest of the wild." It lived up to the description. This far eastern stuff on the Cabo Rojo was always regarded as a very long shot even by the most optimistic, and the failure of this test confirms this opinion.

In the Marland Field, Cia. Pet. Franco Espanola (Marland subsidiary), is calling its No. 6 Limon a completion at 2,506 feet, where the drill stopped in a gray limestone. From an upper stratum, flowing between the 8 and 10-inch casings, a production of some 75 bbls. can be secured.

J. L. Hudson and others' No. 1 West Maguabes, Panuco Pool, reported as 3,000 bbls. when it came in December 6 at 2,035 feet, went to salt water on a test and has been shut in. It may make in time a small stripper. This part of West Maguabes is rather to itself, just north of the Panuco River, opposite the Alamo sector of the field. Three other small wells in this sector, belonging to the same interests, continue good for 1,200 bbls. the day, all of them having been drilled in 1921 at depths averaging 2,040 feet.

The Toteco Pool, in the South Fields, continues stripping 55,000 bbls. the day approximately as follows: Mexican Gulf Co., 25,000 bbls.; Huasteca Petroleum Co., 20,000 bbls., and the International Petroleum Co., 10,000 bbls.

There is no other appreciable change in the status of stripping wells in any pool at this writing.

In the Fields

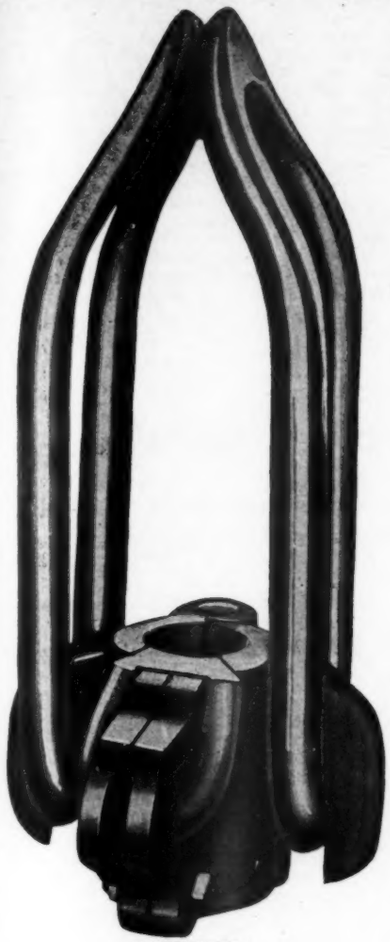
With good weather the order of the day operations in the Cacalilao sector of the Panuco Pool, the most interesting area to the majority of operators in Mexico at this time, are commencing to make some head. The net result is going to be a thorough testing of the eastern part of the sector in question, where many small operators have small leases. The operations in Cacalilao at this time can be epitomized as follows: La Corona Petroleum Co.'s No. 7, in Lot 4, is commencing to get deep for that prolific part of the pool, which is probably the apex of the structure. The drill in the test in question is now 2,120 feet, and it continues to show by heads; its No. 8, same lot, is running in 8-inch at 1,250 feet, in the San Felipe limestone, and its No. 10, same lot, is cementing 8-inch at 1,275 feet in a similar formation. Mexican Atlas Petroleum Corporation's No. 1, Lot 1, is rigged and ready to spud. Mexican Sinclair Petroleum Corporation's No. 1, Lot 2, is drilling at 1,605 feet, in the San Felipe, with a showing of oil; its No. 2, Lot 3, is drilling in shale at 480 feet; its No. 5, same lot, is drilling in gray shale at 930 feet, and its No. 6, same lot, is spudding. All of these tests are being drilled by Mexican Sinclair on Empire Gas & Fuel Co.'s (Doherty interests) leases under a drilling agreement. Mallory and others' No. 1, Lot 1, is moving in. Rich Mex Oil Co.'s No. 1, Lot 1, fraction 4-B, is spudding. Rigney & Reed's No. 1, Lot 1, fraction 2-B, is drilling around 1,000 feet in shale. Vera Cruz Mexican Oil Syndicate's (Turner and others), No. 1, Lot 1, fraction 4-B, has a small showing of oil at 770 feet in a shell break. Transcontinental Petroleum Co.'s No. 11, Lot 4, is drilling in the San Felipe at 1,600 feet.

Other operations in the Panuco Field are as follows: La Corona Petroleum Co.'s No. 42 Potrero del Ojital, is drilling in limestone at 1,525 feet. Credito Petroleum Co.'s No. 1, Lot 9 Palangana, is drilling in gray limestone at 2,195 feet. East Coast Oil Co.'s No. 24 Los Potrerillos is drilling in a white shale with considerable gas at 2,220 feet; its No. 28, same lot, is rigging a rotary. Over in the Halcon sector, East Coast Oil Co.'s No. 6 has cemented a string of 5-inch at 1,625 feet in a shell; and its Nos. 7 and 8 there are rigging up. International Petroleum Co.'s No. 4 Quintinal-Tanchicuin is landing 8-inch casing at 1,400 feet in a gray limestone. Mexican Gulf Oil Co.'s No. 5, Lot 21 Tanchicuin, is drilling in gray limestone at 1,700 feet; its No. 8, same lot, is drilling in a similar formation at 1,375 feet; its No. 7 Lopez, in the heart of the old Panuco Pool, is cementing 8-inch in gray limestone at 1,356 feet, and its No. 8, same lot, is drilling in a similar formation at 1,245 feet.

Mexican Gulf is also going to make another try in its Zuniga lease, where it first secured production in the Panuco Pool, and to this end it is rigging up for No. 6 there. In other words, Panuco, like the Chinampa-Amatlan sectors in the South Fields is being combed for every little possible high spot. Mexican Sinclair Petroleum Corporation's No. 1 Chote-Salvasuchi is cementing 8-inch in limestone at 1,203 feet. New England Fuel Oil Co.'s No. 8 Piazzi, another case of "combing," is drilling in limestone at 1,925 feet. Panuco Boston Oil Co.'s No. 15 Ugarte, just above Mexican Gulf's Zuniga lease, is drilling in shale at a nominal depth. Transcontinental Petroleum Co.'s No. 7 Potrero del Ojital, an old sector that has been giving some surprising results for this company, has cemented 10-inch in limestone at 950 feet, and its No. 8 there is drilling at 750 feet in shale. Over in the Salvasuchi-Tanchicuin sector, Cia. Mex. de Pet. Placeres' No. 1, Lot 21, is around 2,265 feet, with no increase in the showing that has been rated as much as 200 bbls; its No. 2, same lot, is drilling in limestone at 2,285 feet, with a small show. Both holes are too deep for much hope of real production. Its No. 3, in Lot 12 Tanchicuin, is spudding.

The Southern Fields

There has been little of special interest in the southern fields the past week. Huasteca Petroleum Co. (Mexican Petroleum) has shut down its No. 5 Tierra Blanca at 2,215 feet in a brown limestone for orders; its No. 8-A, same lease, is drilling in gray shale at 2,040 feet; its No. 9, same lease, is drilling in the San Felipe at 2,150 feet, and its No. 10 is drilling in brown shale at 930 feet. In Cerro Azul, its No. 28 is drilling in blue shale at 885 feet. In Juan Felipe, just south of Cerro Azul, its No. 2 is rigging; its No. 5 there is drilling in gray shale at 320 feet, with small oil shows at from 310 to 315 feet; its No. 6 is drilling in brown shale at 1,360 feet, and No. 7 is drilling in a similar formation at 1,285 feet. Up in Tres Hermanos, Huasteca's No. 1-A is a deep hole at 2,551 feet in brown shale and shell. Over in Moralillo, west of Juan Felipe, its No. 1 is drilling in brown shale at 675 feet. Agwi Companies (Atlantic Gulf Oil Corporation) is re-rigging its old No. 12, Lot 162 Amatlan, which is did not drill in in 1921 owing to salt water encroachments. It believes now that it might get a small stripper here, hence it is preparing to carry it down from 1,975 feet, where the drill stopped last year. La Corona Petroleum Co.'s No. 1, Lot 6 Castillo de Teayo, south of the Tuxpam River, is cleaning out now at 2,260 feet; its No. 1 San Javier, north of the Cucharras River, is too deep for any hope at 3,005 feet in hard gray shale. Its other interesting wildcat, No. 1 Percero, west of Aguada, has had to re-cement 12½-inch at 1,950 feet in hard shale. In the Aguada, Cortez Oil Corporation continues underreaming in its No. 2 (standard), drilled 4,190 feet; its No. 2 (diamond)



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The Becker Company

Newark, Ohio

has a fishing job at 2,600 feet, where the drill stopped in shale and sand; its No. 3 is drilling in shale at 1,550 feet; its No. 4 is drilling at 725 feet in gray shale, and No. 5 is drilling in shale and sand at 1,865 feet, having had a small show of salt water at 1,800 feet, and considerable gas at 1,827 feet.

Mexican Eagle Oil Co.'s No. 12 San Geronimo is drilling in hard shale at 1,605 feet. Down in Cerro Veijo, its No. 12 is cleaning out to bottom at 2,345 feet, where the drill stopped in a brown limestone; its No. 14, same lot, is drilling in blue shale at 2,368 feet. Over in Tlacolula, its No. 5 is drilling in a hard shale at 2,870 feet. In Palma Sola, is rigging rotary to go down from 2,898 feet, where the standard drill stopped in a gray shale; and its No. 6 there is drilling in green shale at 2,005 feet. In the old Alazan Pool, its No. 24 is drilling in rock at 952 feet. In Potrero del Llano, its old No. 5 has cemented 6-inch at 1,888 feet, in a limestone. International Petroleum Co.'s No. 24 Toteco is drilling in gray limestone at 2,152 feet, which marks it a deep hole now for this sector, and its No. 25 there is drilling in blue shale at 1,590 feet. In Agua Nacida, its No. 3 is drilling in blue shale at 3,057 feet; its No. 5 is fishing for a bit at 530 feet; its No. 6 is drilling in blue shale at 1,890 feet and No. 7 is drilling in gray shale at 1,760 feet. In San Miguel, south of the Tuxpam River and well east of the Alamo structure, International's No. 1 is a derrick; and up in Cincuenta, which is east of Tepetate, it is rigging for a test. Island Oil & Transport Corporation's No. 1, Lot 177 Amatlan, is drilling in shale at 1,910 feet. Cia. Pet. Inversiones' No. 9, Lot 206 (Transcontinental lease), is cementing 8-inch at 2,021 feet, in the San Felipe. Mexican Gulf Oil Co.'s No. 34, Lot 146 Amatlan, is shut down waiting for a roller bit at 1,698 feet in gray shale.

Topila and Miscellaneous

In the Topila Pool, Cia. Pet. Financiera's No. 3, Lot 5 Paciencia de Aguacate is drilling at over 2,000 feet in shales with shell breaks and is showing. The Texas Co. has tools stuck in the hole at 1,964 feet in its No. 1, Lot 35, same sector. In the Marland Field, Cia. Pet. Franco Espanola's (Marland interests) No. 7 Limon is drilling in gray lime at 2,995 feet and its Nos. 9 and 10 are rigging rotary.

In El Barco, Cia. Mex. de Placeres (Buckley interests) have shut down to repair rig at 2,240 feet in a gray limestone. Kern Mex Oil Fields (Ltd.) No. 3 La Palma, which had cemented 8-inch at 1,395 feet in a limestone, will have to re-cement as the pipe failed to stand the pressure test. At Corcorvado, Mucahey and others' No. 1 continues shut down at 1,510 feet, the 8-inch casing sent there being of such quality that the drilling crew refused to run it.

Another Concession?

According to a newspaper story that has just reached here from Los Angeles, a group of Los Angeles capitalists have received a concession from the Mexican Government which covers the coast holdings of the government from a point north of Tampico to the Tuxpam River, "and the island of Juana Ramirez" (an island in Laguna de Tamiahua), etc. Presumably, if this story is correct, it refers to the Federal zone on the Gulf side, and around the Laguna de Tamiahua shore line and the shore line of the islands therein. The government, under the organic law of Mexico, always owns 20 meters of shore line from the waters' edge back on lake and sea beaches (on rivers it owns 10 meters). This is the Federal zone. Mexican Eagle Oil Co. claims the right to drill in Laguna de Tamiahua under an old concession. The only part of the Island of Juana Ramirez that might cover a continuation of the San Diego "Dos Bocas" fold is already under denouncement by the Peninsular Oil Co. No part of this gulf shore or lake zones are anywhere near the famous Tepetate-Chinampa-Amatlan fold, which has already been reduced to stripper wells, the latter being far to the west of the Laguna de Tamiahua. On the other hand, everything drilled recently near the lake, or in it, as was Mexican Eagle's Los Higueros test (completed June, 1920, 2,275 feet, some salt water at 2,675 feet), has never resulted in anything. Even on the mainland farther south a number of wells have been drilled, some of them dating back to 1912, with no commercial production resulting; and now, the extreme eastern test, drilled by Cia. Pet. de Tepetate on Peninsular Petroleum Co.'s Cabo Rojo property, is 2,990 feet, the drill still in the Alazan shales, not even the San Felipe formation having been reached at that great depth. Wherefore the news of this concession occasioned but little comment, for the majority of the operators here would not have it for a gift.

Mexican Notes

Transcontinental Petroleum Co. (Standard Oil of New Jersey) has commenced work laying a 10-inch pipe line from Cacalilao to El Barco, a point on the Panuco River some 20 miles (by river) from Tampico. This work is being rushed as it will afford an outlet for the company's Cacalilao production, obviating a long river haul and avoiding a good many shoals in the upper river. The line is being laid in the New England Fuel Oil Co.'s right-of-way and complete plans call for an 8-inch line also. As production stands at this time in Cacalilai it is competitive oil. Cia. Mex-Holandesa La Corona (Royal Dutch-Shell) has its 10-inch lines into Cacalilao now, and has had for the past two months. These extensive laterals connect at Panuco proper with the company's 10-inch main line to Tampico, a line that is looped half-way now, with a maximum capacity of 40,000 bbls. a day. La Corona is using this capacity to the limit and in addition thereto is barging oil by river from Cacalilao for all it is worth. Wherefore the rush of the Transcontinental to get in a pipe line system that will mean only lower river barging. Mexican-Sinclair Petroleum Corporation has its laterals into Cacalilao all ready for production now. Its pipe line system extends from Panuco proper to El Barco also.

Wyoming Field Operations

By F. B. TAYLOR

Sheldon Dome near Riverton, holds center of interest in Wyoming activities, well drilled there being shut down waiting storage, but showing good indications of making producer. New work starting in Bolton Creek Field, south of Casper. Old Brenning Basin shallow field again coming into attention with indications of renewed activity there.

CASPER, Wyo., Dec. 30.

The year passes out in the Rocky Mountain region with the oil business very quiet. Most of the high officials of the different companies operating in this region are away for the holidays and the field work is almost at a standstill. The refineries are working full time, however, and new storage is being built as rapidly as possible to take care of the flood of crude that is expected in the near future.

The Sheldon Dome well, about 50 miles north of Riverton, in Fremont County, still holds the center of the stage. This well has not been drilled in. The hole is full of oil and, though partly shut in, is making sporadic attempts at flowing. Considerable gas was showing with the oil and when the control head was closed in an attempt to shut it in completely a few days ago the pressure built up so fast that fears were held for the safety of the string of casing and the valve was opened partially to relieve the pressure.

Fifteen 250-bbl. tanks are being moved in to the well now and as soon as these are set up and ready the well will be drilled in. There is about 90 feet of sand at the outcrop of this formation at the foot of Black Mountain about 15 miles north of the Sheldon Dome, where the granites come to the surface and all the strata above the granites can be seen and measured with accuracy. This phase makes it very easy for the geologist to check up his column and like conditions prevail in many other oil fields of this region. In the Lost Soldier Field, in southern Wyoming, the whole geological column can be walked over and measured and examined at the foot of the Ferris Mountains, just north of the field a few miles. In the Lander district, the operators drilling in the fields there can examine the geological formations in detail by going to the foot of the Wind River Mountains and passing over the different strata as they surface. Below the present horizon of oil sand on the Sheldon Dome are three other sand horizons that are possibly oil-bearing sands.

Salt Creek Runs Increase

Tentative arrangements are reported under way to have a pipe line run from the end of the Illinois Pipe Line Co.'s line at the Pilot Butte Field to the Sheldon Dome. This would give the Sheldon Dome an outlet to a rail point in a short time.

Salt Creek runs from that field have more than kept pace with the rate of completion of new tankage at the Midwest tank farm at Casper and the matter is getting serious. A drop in the pipe line runs does not seem imminent, yet if the flood of crude continues the tank farm will be unable to handle the oil and a cut must be made somewhere. Some of the operators predict a reduction in the runs to the former 30 per cent ratio from the now existing ratio of 40 per cent of production.

The present year will end with about 550 wells producing in Salt Creek, not counting what the Mammoth Oil Co. is doing in the Teapot area. The production from Salt Creek, exclusive of Teapot, if all the present producers were opened to capacity, would be in the neighborhood of 180,000 bbls. daily and this great amount of oil could not be handled by the present pipe lines and not even if the present pipe lines were doubled. It is readily seen, therefore, that the steady increase in the amount of crude available at Salt Creek has been a source of much worry to the pipe line men who try to take the crude from the field and also to the refiners and marketers who are trying to assist the oil operator to obtain a good price for his crude without causing trouble by depressing the market with too much crude oil.

It was hoped that the Midwest tank farm addition would be able to hold the increase that the Midwest officials saw was coming, but the completion of the tanks and their delivery was delayed by the severe cold weather of the early part of December and the stocks of crude kept climbing in spite of all the pumps at the stations could do. The new tanks are being built back on the hills north of the old tank farm and the black hulks stretch along the horizon, plain from Casper's streets for more than 2 miles.

Sunburst Field Activities

The Sunburst Field, in Montana, near the Canadian line, is active again as the result of a warm spell of weather after a cold snap. The pipe lines are all thawed out and oil and water is being delivered through them.

The Ohio Oil Co. is fishing for lost tools in the Holloway well, in Section 34-36-2w, and the same firm is sidetracking a lost bit in Section 4-35-2w, in what is known as the Baker well. The next test to come in will probably be the Ohio's No. 2 Conrad Berg, as the casing is set and drilling is starting again at 1,090 feet. The Ohio is spudding in three other locations. The Spokane-Sweetgrass Oil Co.'s test, in Section 27-33-1w, is drilling at 1,250 feet and the Beck Petroleum Co.'s test, Section 18-32-4e, is drilling at about 1,300 feet. The other tests carried as drilling are shut down since the cold snap.

The Illinois Pipe Line Co. is expecting pipe for a 6-inch line from the Sunburst Field to the Canadian boundary at Coutts, where the Imperial Oil Co. of Canada has storage tanks. This pipe line will cross the international boundary and will be the first line to be laid across the line. It is a little over 10 miles from Sunburst town to Coutts.

In the Cat Creek Field, in central Montana, the Midnorthern Oil Co., subsidiary of the Midwest Refining Co. in Montana, drilled in a good well in Section 9-15-29, at 1,250 feet, and the hole is full of oil. This well is in the first Kootenai sand. The same firm drilled in another good well in Section 13-15-29, known as the Wildschultz No. 6, in the second Kootenai sand, and this last well is reported good for 400 bbls.

Bolton Creek Field

The Bolton Creek district about 30 miles south of Casper, and lying just south of the Casper range of mountains is showing some activity for this season of the year. This region is a black oil producer and the Bolton Creek Field has now about 20 wells making production. The new pipe line is completed and ready for final test and then will be turned on the crude. The pipe line at the Casper end delivers to the Midwest Refining Co. plant here.

The Iowa Wyoming Oil Co., one of the main operators in the Bolton Creek Field, is starting two new wells and the same firm together with the Casper Bolton Creek Syndicate, practically controls the best part of the Bolton Field. On the Bates Hole Dome, about 3 miles north of the Bolton Creek area, the Victor Wyoming Oil Co., and Benendum and Trees interests of Pittsburgh, Pa., are

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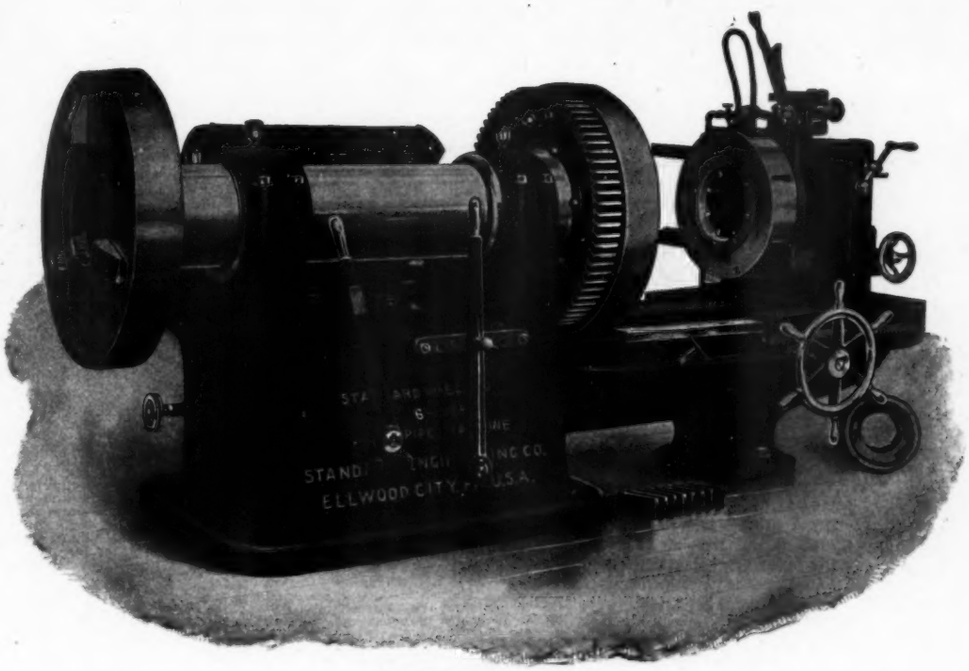

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drilling a joint well to the Tensleep sand. The Bates Hole Dome has already had one well drilled there that had a showing for a producer but which was drowned out by water through inefficient handling.

On the Two Bar Dome, between the Bates Hole Dome and the Casper Mountains, another wildcat has been started for the black oil sands. This structure is rather small in area and the well is being drilled with a machine.

South of Guernsey, in Platte County, near the Nebraska line, a local company is putting down a wildcat, and the hole is below 1,000 feet and drilling. This well is not located on any known structure and has not attracted much attention.

The Brenning Basin Field in Converse County is also coming in for some attention. This operation is one of the oldest shallow fields in Wyoming and some of the wells produce a high grade crude from 150 feet below the surface. The field has a pipe line to the railroad but due to inefficient handling in the past, the production is practically nothing now and considerable work must be done to bring the wells up to production again.

PIPE LINE RUNS

Field—	Daily Runs Bbls.
Salt Creek	83,785
Big Muddy	3,160
Lance Creek	740
Mule Creek	Shut down
Osage	490
Elk Basin	1,995
Grass Creek	4,660
Greybull	170
Hamilton Dome	270
Pilot Butte	110
Lander	300
Dallas and Derby	245
Lost Soldier	2,210
Ferris	515
Rock River	4,175
Cat Creek	6,515
Sunburst	850
Miscellaneous	500
Total	110,790

OIL MAN ASSASSINATED

TAMPICO, Mexico, Dec. 28.—Emile Arnsten, 40, a native of Norway, better known here as "Eddie Anderson," assistant pipe line superintendent for the Mexican Gulf Oil Co., with headquarters in the lower fields, was shot from ambush and instantly killed the other day by an unidentified person. Anderson came here from Shreveport, La. As far as is known he had no relatives.

SMACKOVER HOLDINGS SAID TO HAVE BEEN SOLD FOR $1,500,000

EL DORADO, Ark., Jan. 1.—It is reported that Clark & Melat have sold their holdings in the west end of the Smackover Pool, adjoining the Pat Marr well, to the Pan American Oil Co. for $1.500,000, of which $500,000 was paid in cash and the remainder to be paid in oil. The holdings consist of 280 acres of leases and a well which blew in with an estimated production of 10,000 bbls., but which soon sanded up and has never been cleaned out or properly completed.

Charter has been filed at Baton Rouge, La., for the Smackover Pipe Line Co., capitalized at $500,000, and organized for the purpose of building and operating a pipe line from the Smackover Field to El Dorado. The company was organized by J. B. Atkins, Jr., B. H. Gray, O. J. Dykes, K. E. Merren, D. D. Hinkle, C. D. Keen and J. B. Atkins. O. J. Dykes has been elected president of the new company, C. D. Keen, vice president, and C. P. Clayton, secretary and treasurer.

COMPLETIONS FALL OFF IN NOVEMBER

Only 1,825 Wells Were Finished in the Fields East of the Rocky Mountains, With Initial Production of 316,639 Barrels, a Considerable Drop From the October Results.

RESULTS IN ALL FIELDS

Summary of Work Completed

District—	Comp.	Prod.	Dry	Gas
Eastern Fields	389	2,087	75	65
Central Ohio	56	261	9	35
Lima	57	651	5	3
Indiana	13	130	5	0
Kentucky-Tennessee	173	2,671	32	5
Illinois	21	1,008	6	0
Kansas	120	5,511	48	16
Oklahoma	440	89,249	136	71
North Central Texas	215	16,818	78	10
East Central Texas	32	620	19	0
Gulf Coast	146	36,858	46	0
N. Louisiana-Arkansas	113	137,469	14	17
Wyoming	37	22,656	1	0
Montana	13	650	4	0
Utah	0	0	0	0
Total, Dec.	1,825	316,639	478	222
Total, Nov.	2,121	355,242	515	227
Difference	296	38,603	37	5

Summary of Rigs and Wells Drilling

District—	Rigs	Drg.	Total
Eastern Fields	210	455	665
Central Ohio	50	91	141
Lima	8	48	56
Indiana	0	26	26
Kentucky	5	275	280
Tennessee	2	18	20
Mississippi	0	19	19
Alabama	0	1	1
Illinois	3	45	48
Kansas	82	202	284
Oklahoma	333	1,066	1,399
North Central Texas	119	352	c71
East Central Texas	7	105	112
Gulf Coast	91	306	397
N. Louisiana-Arkansas	159	416	575
Wyoming	151	478	629
Montana	31	164	195
Utah	0	21	21
Total, Dec.	1,251	4,088	5,339
Total, Nov.	1,173	4,336	5,509
Difference	78	248	170

A marked falling off in completed work in the fields east of the Rocky Mountains is noted for December. There was also an appreciable slump in the quantity of initial production. A total of 1,825 wells were completed in all the fields, with initial production aggregating 316,639 bbls. The dry holes numbered 478, and the gas wells 222. In November the completions numbered 2,121, new production 355,242 bbls., dry holes 515, and gassers 227. In October, the completions were 1,973 in number, initial production 187,164 bbls., dry holes 483 and gassers 185. The December results show a falling off from November of 296 in completions, 38,603 bbls. in new production, 37 fewer dry holes and 5 fewer gas wells. Compared with October however, December does not look so bad, and while it shows 148 fewer completions, it had an increase of 129,475 bbls. in initial production, with 5 more dry holes and 37 fewer gassers. The big production in the Smackover district is responsible for the large increase in new production in November and December. In new work, there was a distinct falling off in December. The rigs up numbered 1,251 and the wells drilling 4,088, a total of 5,339, while at the close of November there were 1,173 rigs up and 5,509 wells drilling, indicating in a gain of 78 in rigs but a falling off of 248 in wells drilling, a net loss of 170. At the close of October the rigs numbered 1,231 and the drilling wells 4,353, a total of 5,584, which total exceeds that of December by 245. It is interesting to note that at the close of December in 1921, there were 1,604 rigs up and 4,544 wells drilling, a total of 6-148, or 353 more rigs and 456 more wells drilling, a total of 809 more than at the close of 1922.

The initial production of the various fields for December and November compare as follows: Eastern, November, 3,068 bbls., December 2,087 bbls.; Central Ohio, November, 357 bbls., December, 261 bbls.; Lima, November, 731 bbls., December, 651 bbls.; Kentucky-Tennessee, November, 2,213 bbls., December, 2,671 bbls.; Indiana, November, 274 bbls., December, 130 bbls.; Illinois, November, 580 bbls., December, 1,008 bbls.; Kansas November, 7,279 bbls., December, 5,511 bbls.; Oklahoma, November, 85,961 bbls., December, 89,249 bbls.; North Central Texas, November, 12,153 bbls., December, 16,818 bbls.; East Central Texas, November 4,340 bbls., December, 610 bbls.; Gulf Coast, November, 32,044 bbls., December, 36,858 bbls.; Arkansas-Louisiana, 177,760 bbls., December, 137,469 bbls.; Wyoming, in November, 27,857 bbls., December, 22,656 bbls.; Montana, November 625 bbls., December 650 bbls.

The falling off in completed work was almost general, the Arkansas-Louisiana division being the only one to show a gain in December in this respect.

The number of oil wells completed in December was 1,125 and these averaged in initial production 272 bbls., while the average for November from 1,379 oil wells was 227 bbls. and the average from the 1,304 completions in October was 144 bbls.

In December, 1921, the number of completions was 1,609, initial daily production 362,603 bbls., dry holes 343 and gas wells 201. The results in December 1922, compared with the same month in 1921, show a gain of 216 in completed wells, 45,964 bbls. less in initial production, 135 more dry holes and 21 more gassers. The big reduction of December, 1921, came from the Mexia Field in East Central Texas, which is now almost in the discard so far as new production goes and has been supplanted by the low grade Smackover production.

OKLAHOMA

Summary of Wells Completed

County—	Comp.	Prod.	Dry	Gas
Washington	11	180	5	0
Nowata-Rogers	5	59	0	0
Osage	62	31,694	4	4
Tulsa	22	342	4	4
Okmulgee	45	950	24	10
Okfuskee, Hughes, McIntosh, Hughes	33	155	13	17
Muskogee-Wagoner	10	300	4	1
Creek	110	26,850	40	7
Pawnee	4	85	1	1
Payne	2	30	1	0
Kay	12	10,380	7	1
Garfield-Noble	22	12,740	5	2
Carter	39	3,720	7	3
Stephens-Cotton	30	260	9	13
Miscellaneous	33	1,004	12	5
Total, December	440	89,249	136	71
Total, November	551	85,961	165	82
Difference	111	3,288	29	11

Summary of New Operations

County—	Rigs	Drg.	Ttl.
Washington	0	16	16
Nowata-Rogers	0	5	5
Osage	64	149	213
Tulsa	7	37	44
Okmulgee	23	84	107
Okfuskee, McIntosh, Seminole, Hughes	35	108	143
Muskogee-Wagoner	4	29	33
Creek	100	156	256
Pawnee	9	45	54
Payne	13	34	47
Kay	14	49	63
Garfield-Noble	15	54	69
Carter	19	67	86
Stephens-Cotton	7	46	53
Miscellaneous	23	187	210
Total, December	333	1,066	1,399
Total, November	272	1,100	1,372
Difference	61	34	27

In December the fields of Oklahoma had 440 completions with a total initial daily production of 89,249 bbls. There were 136 dry holes, and 71 gas wells. In November there were 551 completions, 85,961 bbls. of new production, 165 dry holes and 82 gas wells, showing a decrease for the month just passed of 111 completions, but with an increase in daily production of 3,288 bbls., 29 fewer dry holes, and a decrease of 11 in gas wells.

Further development of the 15-9 district, Creek County, and the 16-8 district, same county, with several gushers added to the Tonkawa producing district in Kay and Noble Counties, attracted a good deal of interest during the month.

In Section 4-15-9, The Texas Co. completed a well that made as high as 200 bbls. an hour and flowed 180 bbls. an hour for the first couple of days. In Section 23-16-9, the Prairie Oil & Gas Co. completed a well that made over 4,100 bbls. the first 24 hours, but stopped flowing at the end of 40 hours, only to begin producing again when the hole was cleaned out.

The beginning of an intensive inside drilling campaign in the northern extension of the Tonkawa district, Kay County, was inaugurated during the month, promising a sharp increase in the daily production of the field, which is already yielding more than 28,000 bbls. a day on the average.

New work started in the State in December, showed an increase over November. The last of December there were 333 rigs, 1,066 wells drilling, with a total of 1,399. The last of November showed 272 rigs, 1,100 wells drilling, totaling 1,372.

New production by counties compared in the two months as follows: Washington, December, 180 bbls., November, 75 bbls.; Nowata-Rogers, December, 59 bbls., November, 197 bbls.; Osage, December, 31,694 bbls., November, 40,970 bbls.; Tulsa, December, 842 bbls., November, 935 bbls.; Okmulgee, December, 950 bbls., November, 590 bbls.; Okfuskee, McIntosh, Seminole and Hughes, December, 155 bbls., November, 4,795 bbls.; Muskogee-Wagoner, December, 300 bbls., November, 80 bbls.; Creek, December, 26,850 bbls., November, 17,675 bbls.; Pawnee, December, 85 bbls., November, 283 bbls.; Payne, December, 30 bbls., November, 265 bbls.; Kay, December, 10,380 bbls., November, 2,030 bbls.; Garfield-Noble, December 12,740 bbls., November, 9,995 bbls.; Carter, December, 3,720 bbls., November, 4,370 bbls.; Stephens-Cotton, December, 260 bbls., November, 636 bbls. Miscellaneous, December, 1,004 bbls., November, 3,065 bbls.

KANSAS

Summary of Wells Completed

County—	Comp.	Prod.	Dry	Gas
Butler	30	1,318	15	0
Marion	2	200	1	0
Greenwood-Woodson	38	3,533	10	0
Chautauqua-Elk	11	125	2	6
Montgomery-Wilson	7	0	2	1
Neosho-Allen	7	52	3	1
Miami-Franklin-Douglas	0	0	0	0
Miscellaneous	25	283	11	3
Total, December	120	5,511	48	16
Total, November	125	7,279	39	10
Difference	5	1,768	9	6

Summary of New Operations

County—	Rigs	Drg.	Ttl.
Butler	22	66	88
Marion	12	9	21
Greenwood-Woodson	34	51	85
Chautauqua-Elk	0	3	3
Montgomery-Wilson	0	5	5
Neosho-Allen	0	4	4
Miami-Franklin-Douglas	0	4	4
Miscellaneous	14	60	74
Total, December	82	202	284
Total, November	74	199	273
Difference	8	3	11

Kansas, during December, had 120 completions, with a total initial production of 5,511 bbls. Forty-eight wells were dry and 16 were gas wells. In November, there were 125 completions, 7,279 bbls. of new production, 39 dry, and 10 gassers, showing a decline of 5 completions, 1,768 bbls., an increase of 9 dry holes and 6 more gassers.

During the past month Greenwood County, which had been running behind Butler County in initial production, shows an increase over the latter county of more than 2,000 bbls., failures in the Fox-Bush district and smaller wells in the new Potwin district being in part responsible for the change.

Cowley County, which is listed under miscellaneous counties, was one of the most active districts in the State during the month, and promises to be very busy through the next few months if cold weather does not delay drilling.

The State showed an increase in December of new operations. The last of November there were 74 rigs, 199 drilling wells, and a total of 273 operations. In December, there were 82 rigs, 203

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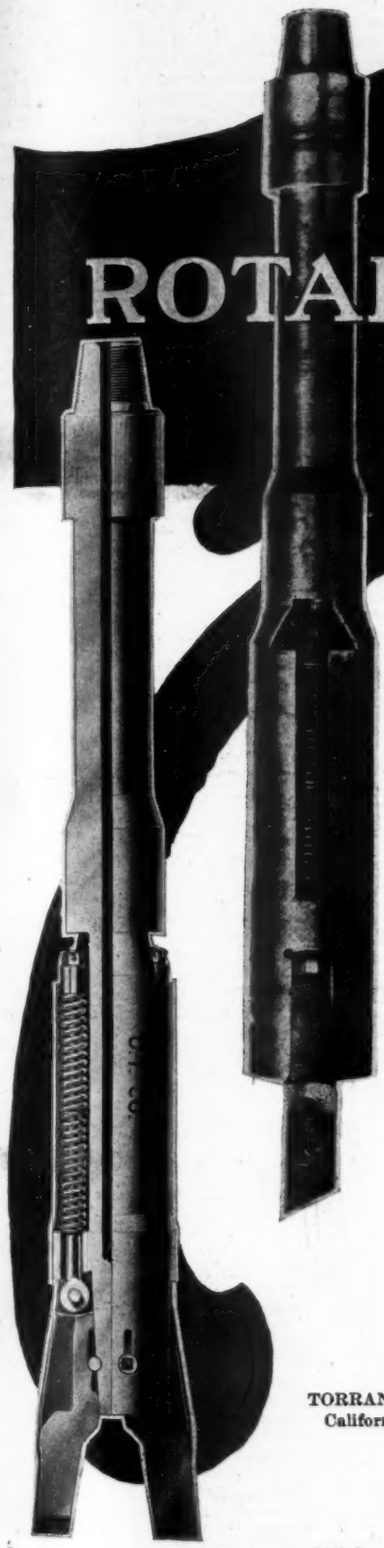

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drilling wells, and a total of 284 operations.

Counties compared in new daily production for the two months as follows: Butler, December, 1,318 bbls., November, 4,290 bbls.; Marion, December, 200 bbls., November, 0. Greenwood and Woodson, December, 3,533 bbls., November, 2,270 bbls.; Chautauqua and Elk, December, 125 bbls., November, 260 bbls.; Montgomery and Wilson, December, 0, November, 122 bbls.; Neosho-Allen, December, 52 bbls., November, 77 bbls.; Miami-Franklin-Douglas, December, 0, November 78 bbls. Miscellaneous, December, 283 bbls., November, 182 bbls.

NORTH CENTRAL TEXAS

Summary of Field Operations

District—	Comp.	Prod.	Dry	Gas	Rigs	Drg.	Ttl.
Wichita	57	3,603	15	0	26	80	106
Burkburnett	17	508	11	0	3	19	27
Eastland	31	2,620	6	3	10	35	45
Stephens	23	3,004	9	2	17	41	58
Young	13	802	5	1	17	42	59
Wildcats	74	6,281	32	4	41	135	176
Total, Dec.	215	16,818	78	10	119	352	471
Total, Nov.	163	12,153	40	8	116	361	477
Difference	52	4,665	38	2	3	9	6

More completions with greater production were recorded in the North Central Texas fields during December, than in November, there being 215 completions and 16,818 bbls. of production in December and 163 completions and 12,153 bbls. of production in November. There also were more rigs, there being 119 rigs in December and 116 in November, but more tests were drilling in November. the total for that month being 361, while there were 352 in December. More dry holes were encountered in December, the number being 78, while there were 40 in November. There were 10 gas wells completed in December and 8 in November.

EAST CENTRAL TEXAS

Summary of Field Operations

County—	Comp.	Prod.	Dry	Gas	Rigs	Drg.	Ttl.
Limestone	15	505	8	0	2	45	47
Navarro	12	115	6	0	0	15	15
Freestone	3	0	3	0	0	3	3
Miscellaneous	2	0	2	0	5	42	47
Total, Dec.	32	620	19	0	7	105	112
Total, Nov.	39	4,340	20	3	16	148	164
Difference	7	3,720	1	3	9	43	52

The East Central Texas fields are steadily falling off in importance and the month of December showed the lowest results from the drill of any since the opening of the Mexia Field by Col. Humphreys and his associates. There were 32 completed wells in the month in review with a total initial production of 620 bbls. Nineteen dry holes are recorded. A considerable number of drilling wells were abandoned and dropped from the drilling reports, although they could not have been classified as dry because they were not deep enough. There are only 7 rigs up and 105 wells drilling in the field at the close of the month and many of the so-called drilling wells are shut down. In the month of November there were 39 wells completed with 4,340 bbls. initial production and 20 dry holes.

SUMMARY

District—	Comp.	Prod.	Dry	Rigs	Drg.	Ttl.
Batson	3	25	1	0	3	3
Blue Ridge	1	150	0	0	2	2
Barber Hill	2	0	2	4	8	12
Dayton	1	0	1	0	4	4
Damon Mound	3	340	0	0	9	9
Edgerly	2	1,500	0	2	0	2
Goose Creek	17	4,925	8	7	16	23
Humble	4	55	2	2	7	9
Hull	20	14,525	10	9	23	32
Jennings	1	25	0	0	1	1
Markham	0	0	0	0	2	2
Orange	10	2,225	4	5	12	17
Pierce Junction	2	0	2	0	3	3
Spindletop	3	10	2	0	1	1
Saratoga	1	60	0	0	0	0
Sour Lake	5	105	0	2	3	5
Somerset	19	143	0	13	19	32
Vinton	7	3,650	2	3	8	11
West Columbia	9	7,770	4	3	13	16
Miscellaneous	36	1,350	8	41	172	213
Total, Dec.	146	36,858	46	91	306	397
Total, Nov.	138	32,044	42	79	317	396
Difference	8	4,814	4	12	11	1

Completions during December in the Gulf Coast territory and including the Somerset, Webb County and the Milam County shallow sand section, total 146, or 8 more than during November. The new production aggregates 36,858 bbls. compared with 32,044 bbls. last month, or an increase of 4,814 bbls. Of the total initial production, 1,125 bbls. were developed in the Laredo districts, 158 in Milam County, 60 at Piedras Pintas and 7 in Angelina County. The light gravity Somerset Field added 143 bbls. more. Deducting these from the Coastal Pools proper, leaves 35,365 bbls. net.

Dry holes number 46 or 4 more than in November. Rigs number 91, an increase of 12 over last month and drilling wells number 306, compared with 317 at the close of November. The Hull Pool contributed 14,525 bbls. of the total and West Columbia, 7,770 bbls. Goose Creek added 4,925 bbls. and Orange, 2,225 bbls. The Vinton Pool shows new production of 3,650 bbls.

Early in the month Somerset crude was placed on a parity with Mid-Continent, both as regards prices and grades. The shallow Milam County product was advanced 20 cents to $1.60. It is being taken by local refineries. Gulf Coast quotations are unchanged.

EASTERN FIELDS

Summary of Completed Work

Field—	Comp.	Prod.	Dry	Gas
Alleghany	28	48	0	0
Bradford	58	128	0	0
Middle Field	24	757	3	0
Venango-Clarion	47	76	2	6
Butler-Armstrong	18	17	11	2
South West Pennsylvania	30	92	6	11
West Virginia	82	195	19	34
Southeast Ohio	102	774	34	12
Total, Dec.	389	2,087	75	65
Total, Nov.	467	3,068	66	59
Difference	78	981	9	6

Rigs and Wells Drilling

Field—	Rigs	Drg.	Ttl.
Alleghany	9	15	24
Bradford	18	54	72
Middle Field	0	20	20
Venango-Clarion	12	22	34
Butler-Armstrong	15	16	31
South West Pennsylvania	26	59	85
West Virginia	89	159	248
Southeast Ohio	41	110	151
Total, Dec.	210	455	665
Total, Nov.	226	491	717
Difference	16	36	52

In the Eastern fields, which include New York, Pennsylvania, West Virginia and southeastern Ohio, there were 389 completions in December, with a total new production of 2,087 bbls. Seventy-five wells were dry and 65 were gassers. Compared with November this shows a falling off of 78 in completions, 981 bbls. in new production, 9 more dry holes and 6 more gas wells. the record for the previous month having been 467 completions, 3,068 bbls. in new production, 66 dry holes and 59 gas wells. The winter season and the continued low price of crude resulted in a decrease of new operations. There were 210 rigs up and 455 wells drilling, a total of 665, as against 226 rigs up and 491 wells drilling at the close of October, a falling off in November of 16 in rigs and 36 in wells drilling, or a total decline of 52.

NORTH LOUISIANA-ARKANSAS

Summary of Field Operations

District—	Comp.	Prod.	Dry	Gas	Rigs	Drg.	Ttl.
Bellevue	3	10	2	0	1	4	5
Caddo	7	2,024	3	0	2	29	31
De Soto	3	800	2	0	1	6	7
Haynesville	8	870	0	0	6	21	27
Red River	0	0	0	0	1	2	3
El Dorado	76	133,565	3	8	128	207	335
La. wildcats	15	75	4	9	11	74	85
Ark. wildcats	1	125	0	0	9	73	82
Total, Dec.	113	137,469	14	17	159	416	575
Total, Nov.	127	177,760	19	8	156	386	542
Difference	14	40,291	5	9	3	30	33

Notwithstanding the difficulties encountered in disposing of the production in the Smackover district, in the north end of the El Dorado Field, there was only a slight decrease in drilling activity in that territory during the past month, resulting in initial production in the South Arkansas Field of 133,565 bbls. Only 3,704 bbls. of new production was obtained in the north Louisiana fields, most of this coming from the Caddo, De Soto and Haynesville districts. A remarkable record was made in the El Dorado Field, where out of 76 completions, only 3 were failures. Continued activity is promised for the coming month as shown by an increase of 33 in the number of drilling wells and rigs.

LIMA FIELD

Summary of Field Work

District	Comp.	Prod.	Dry	Rigs	Drg.	Ttl.
Wood	6	93	0	0	13	13
Hancock	7	130	1	1	6	7
Allen	6	83	0	1	2	3
Auglaize	7	67	1	3	1	4
Sandusky	9	38	1	1	3	4
Mercer	4	19	0	2	1	3
Van Wert	1	18	0	0	4	4
Seneca	1	75	0	0	3	3
Lucas	1	0	1	0	1	1
Ottawa	4	18	0	0	1	1
Darke	7	100	1	0	8	8
Hardin	1	0	1	0	2	2
Logan	2	0	2	0	0	0
Defiance	1	10	0	0	0	0
Michigan	0	0	0	0	3	3
Total, Dec.	57	651	8*	8	48	56
Total, Nov.	52	731	9	5	67	72
Difference	5	80	1	3	19	16

*Three gas wells are included in this column.

In completed work, the Lima Field of northwestern Ohio, did very well for December, but in new work under way there is the usual decline at the close of the year. During the month 57 wells were completed of which 5 were dry holes. 3 were gas wells and a new production of 651 bbls. A comparison with the November figures shows an increase of 5 in completed wells, one less dry hole and gas well and 80 bbls. less of new production. At the close of December, there were 8 rigs up and 48 drilling tests against 5 rigs and 67 drilling tests at the close of November, a net decrease in new work of 16.

CENTRAL OHIO

Summary of Field Work

District—	Comp.	Prod.	Dry	Gas	Rigs	Drg.	Ttl.
Licking	1	4	0	0	0	2	2
Fairfield	1	0	1	0	0	1	1
Knox	21	42	4	8	9	6	15
Ashland	1	0	0	1	2	7	9
Medina	13	0	1	12	11	17	28
Lorain	0	0	0	0	0	7	7
Wayne	4	175	0	3	7	19	26
Richland	0	0	0	0	1	0	1
Vinton	2	0	1	1	2	4	6
Perry	1	0	0	1	0	0	0
Hocking	1	0	0	1	3	3	6
Holmes	5	40	1	3	5	16	21
Jackson	2	0	0	2	5	3	8
Coshocton	0	0	0	0	2	0	2
Athens	3	0	0	3	1	5	6
Meigs	1	0	1	0	0	1	1
Gallia	0	0	0	0	2	0	2
Total, Dec.	56	261	9	35	50	91	141
Total, Nov.	116	357	32	61	40	113	153
Difference	60	96	23	26	10	22	12

Central Ohio did not make a very good showing during the closing month of the year, but this is not unusual. December showed a total of 56 completions, with 9 dry holes, 35 gas wells and 12 oil wells, with a new production of 261 bbls. A comparison with November figures shows a decrease of 60 in completed wells, 96 bbls. in new production, 23 dry holes and 26 gas wells. The finding of a 175-bbl. well by the Ohio Oil Co. on the Jameson farm, in East Union Township, Medina County, was the sensation of the month, and the largest well for the field. Another important find was that of the East Ohio Gas Co., on the Anderson farm, in Hardy Township, Holmes County, with 40 bbls., making the second good well found by that company in that township, and may be the forerunner of an entirely new Clinton Limestone Pool. The best results of the drilling for gas for the month was made by the Ohio Fuel Supply Co. on the Poor lease, in Lick Township, Jackson County, in wells Nos. 2 and 4, and the Ohio Oil Co.'s well on the Lefever lease, in Prairie Township, Holmes County.

New work under way shows a falling off, due to the winter weather and the holidays. At the close of December, there were 50 rigs up and 91 tests drilling against 40 rigs and 113 drilling tests at the close of November, a net decrease of 12.

INDIANA

Summary of Field Operations

District—	Comp.	Prod.	Dry	Rigs	Drg.	Ttl.
Blackford	0	0	0	0	0	0
Jay	3	30	0	0	6	6
Grant	1	25	0	0	0	0
Huntington	2	30	0	0	2	2
Delaware	1	0	1	0	0	0
Randolph	0	0	0	0	0	0
Gibson	0	0	0	0	8	8
Pike	3	45	1	0	4	4
Sullivan	3	0	3	0	1	1
Knox	0	0	0	0	1	1
Clay	0	0	0	0	0	0
Wabash	0	0	0	0	1	1
Wayne	0	0	0	0	1	1
Warrick	0	0	0	0	1	1
Vigo	0	0	0	0	1	1
Total, Dec.	13	130	5	0	26	26
Total, Nov.	32	274	8	0	30	30
Difference	19	144	3	0	4	4

Work is almost at a standstill in the fields of Indiana, as is usually the case during the winter months. December shows only 13 completions with 5 dry holes and a new production of but 130 bbls. This shows, when compared with the November figures, a decrease of 19 in completed wells, 3 in dry holes, and 144 bbls. less production.

New work under way at the close of December shows 26 wells drilling against 30 for November, a net decrease of 4.

KENTUCKY, TENNESSEE, MISSISSIPPI AND ALABAMA

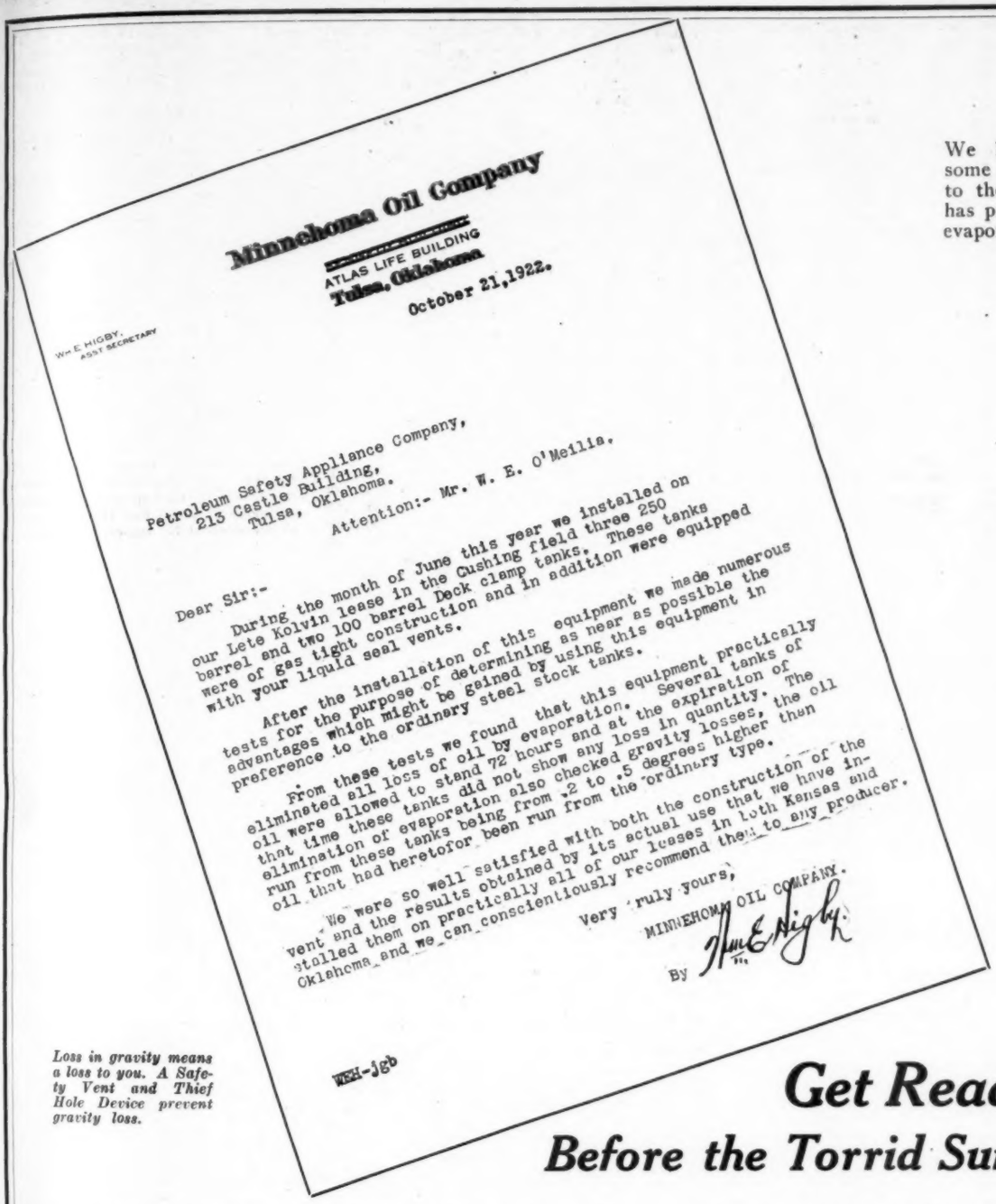
Summary of Field Operations

District—	Comp.	Prod.	Dry	Gas	Rigs	Drg.	Ttl.
Wayne	8	11	5	0	0	9	9
Powell	2	20	1	0	0	5	5
Estill	4	17	0	0	0	6	6
Lee	1	2	0	0	0	5	5
Allen	71	1,171	13	1	0	53	53
Warren	40	541	7	0	0	57	57
Barren	3	15	0	0	0	7	7
Simpson	3	65	1	0	0	2	2
Logan	3	0	2	0	0	2	2
Johnson-Magoffin	24	369	0	3	5	36	41
Cumberland	5	95	1	0	0	32	32
Monroe	2	225	0	0	0	10	10
Clinton	1	10	0	0	0	6	6
Ohio	2	5	1	0	0	5	5
Hancock	1	10	0	0	0	6	6
Metcalf	1	5	0	0	0	3	3
Russell	1	10	0	0	0	7	7
Owsley	1	0	0	1	0	5	5
Wolfe	0	0	0	0	0	1	1
Lawrence	0	0	0	0	0	6	6
McLean	0	0	0	0	0	2	2
Daviess	0	0	0	0	0	2	2
Breckenridge	0	0	0	0	0	1	1
Henderson	0	0	0	0	0	2	2
Marion	0	0	0	0	0	1	1
Greenup	0	0	0	0	0	1	1
Lewis	0	0	0	0	0	1	1
Pike	0	0	0	0	0	2	2
Crittenden	0	0	0	0	0	1	1
Tennessee	0	0	0	0	2	18	20
Mississippi	0	0	0	0	0	19	19
Alabama	0	0	0	0	0	1	1
Total Dec.	173	2,671	32	5	7	213	220
Total, Nov.	240	2,213	63	6	12	390	402
Difference	67	458	31	1	5	77	82

All sections of Kentucky are rather quiet at the close of the year, December showing a decrease in completed work, but a slight gain in new production, due in the main to the good wells found in the shallow fields of Allen County, and

SALT WATER AND OIL FROM SMACKOVER IS MENACE TO HEALTH

MONROE, La., Jan. 7.—Monroe's water supply is being menaced seriously by the salt water oil which is flowing from the Smackover Field into the Ouachita River, from which the city's supply of water is obtained. So serious is the condition that Mayor Bernstein has appealed to the Interstate Commerce Commissison and other Federal authorities for relief. Monroe is located about 65 miles southeast of Smackover, and even at this distance the surface of the river is blue and greasy looking from the oil that has escaped from earthen storage and flowing wells in the Smackover Field. Hundreds of dead fish are reported floating down the river and it is feared that the contamination of the water will prove a serious menace to the health of the population throughout this territory.



Minnehoma Oil Company
ATLAS LIFE BUILDING
Tulsa, Oklahoma

October 21,1922.

W. E. HIGBY,
ASST SECRETARY

Petroleum Safety Appliance Company,
213 Castle Building,
Tulsa, Oklahoma.

Attention:- Mr. W. E. O'Meilia.

Dear Sir:-

During the month of June this year we installed on our Lete Kolvin lease in the Cushing field three 250 barrel and two 100 barrel Deck clamp tanks. These tanks were of gas tight construction and in addition were equipped with your liquid seal vents.

After the installation of this equipment we made numerous tests for the purpose of determining as near as possible the advantages which might be gained by using this equipment in preference to the ordinary steel stock tanks.

From these tests we found that this equipment practically eliminated all loss of oil by evaporation. Several tanks of oil were allowed to stand 72 hours and at the expiration of that time these tanks did not show any loss in quantity. The elimination of evaporation also checked gravity losses, the oil run from these tanks being from .2 to .5 degrees higher than oil that had heretofor been run from the ordinary type.

We were so well satisfied with both the construction of the vent and the results obtained by its actual use that we have installed them on practically all of our leases in both Kansas and Oklahoma and we can conscientiously recommend them to any producer.

Very truly yours,

MINNEHOMA OIL COMPANY.

By W. E. Higby

WEH-jgb

We have information from some of the largest producers to the effect our equipment has practically eliminated evaporation losses.

Loss in gravity means a loss to you. A Safety Vent and Thief Hole Device prevent gravity loss.

Get Ready Now—
Before the Torrid Summer Days

DON'T WAIT until the torrid summer days with Old Sol on the job, ready to relieve you of real money—Evaporation and gravity losses soar during the summer months. Operators are beginning to realize this as never before, since they are compelled to sell on a gravity basis. The loss annually to the industry, as a result of improperly equipped tankage runs into millions of dollars. Equip your field storage tanks and your refinery storage tanks with Petroleum Safety Vent and Positive Thief Hole Device (which is not mechanical, but a positive liquid seal) and keep gravity up. Tanks equipped with our Safety Vent and Thief Hole Device, show a 98% reduction in loss by evaporation.

Our service department can equip your tanks with a Safety Vent and Thief Hole Device on very short notice. Write for full details.

Insist that your tanks are equipped with the Petroleum Safety Vent and Thief Hole Device

Petroleum Safety Appliance Company

213 Castle Bldg., P. O. Box 811, Tulsa, Okla.

in the Monroe County Field. Allen County leads in the number of completions and in new production, with Warren second, closely followed by the Johnson-Magoffin Field. December shows a total of 173 wells completed, 32 dry holes, 5 gas wells and 2,671 bbls. of new production. A comparison with the November figures shows a decrease of 67 in completed wells, 31 less dry holes and 1 less gas well, while the new production for December shows a gain over November of 458 bbls.

At the close of December, there were 7 rigs up and 313 drilling tests in Kentucky, Tennessee, Mississippi and Alabama, for a total of 320. The net decrease for December amounts to 82 in comparison to November.

ILLINOIS

Summary of Field Work

District—	Comp.	Prod.	Dry	Rigs	Drg.	Ttl.
Clark	1	18	0	1	8	9
Cumberland	0	0	0	0	3	3
Crawford	9	100	5	1	3	4
Lawrence	3	40	0	1	2	3
Marion	5	450	0	0	7	7
Clinton	1	100	0	0	1	1
Monroe	0	0	0	0	6	6
Washington	0	0	0	0	2	2
Alexander	0	0	0	0	1	1
Macon	0	0	0	0	2	2
Jackson	0	0	0	0	4	4
Edwards	0	0	0	0	1	1
Henderson	0	0	0	0	2	2
Jefferson	1	0	1	0	0	0
Morgan	0	0	0	0	1	1
Jasper	0	0	0	0	1	1
Wabash	1	300	0	0	1	1
Macoupin	0	0	0	0	0	0
Total, Dec.	21	1,008	6	3	45	48
Total, Nov.	27	580	7	0	48	48
Difference	6	428	1	3	3	0

The feature of the Illinois development for December, was the bringing in of a wildcat well in Wabash Township, Wabash County, by Hartman and others on the Della Wright farm, that showed production of 300 bbls. This well is in advance of the Allendale Field of the same county to the southwest and may mean the opening of an entirely new field. During December a total of 21 wells were completed, with 6 dry holes, 1,008 bbls. new production. In new work under way there is the same total as for the close of November.

GENERAL SUMMARY

Wyoming

District—	Comp.	Prod.	Dry	Rigs	Drg.	Ttl.
Big Muddy	1	35	0	0	17	17
Salt Creek	29	20,906	0	72	116	188
Lance Creek	0	0	0	1	7	8
Warm Springs, etc	1	65	0	3	24	27
Big Horn Basin	0	0	0	5	27	32
Lost Soldier, etc.	2	1,000	0	20	56	76
Rock River, etc.	0	0	0	9	46	55
Fremont County	2	150	1	13	28	41
Mule Creek	0	0	0	0	11	11
Osage	0	0	0	3	43	46
Natrona County	1	500	0	3	15	18
Lincoln County	0	0	0	2	20	22
Baxter Basin	1	0	0	6	9	15
Miscellaneous	0	0	0	14	59	73
Total, Dec.	37	22,656	1	151	478	629
Total, Nov.	38	27,857	5	166	496	662
Difference	1	5,201	4	15	18	33

Gas production, 80,000,000.

Montana

District—	Comp.	Prod.	Dry	Rigs	Drg.	Ttl.
Cat Creek	3	400	1	2	34	36
Kevin Sunburst	10	250	3	18	23	41
Miscellaneous	0	0	0	11	107	118
Total, Dec.	13	650	4	31	164	195
Total, Nov.	6	625	0	32	169	201
Difference	7	25	4	1	5	6

Utah

District—	Comp.	Prod.	Dry	Rigs	Drg.	Ttl.
December	0	0	0	0	21	21
November	0	0	0	0	21	21
Difference	0	0	0	0	0	0

There was a decline in field operations as well as in completions in the Wyoming fields during December as compared to November, there being 1 less completion, 15 less rigs and 18 less tests drilling. Production also slumped, the total for December being 22,656 bbls. as compared to 27,857 bbls., in November. In Montana there were 7 more completions in December than in November, production being 25 bbls. more, it being 650 bbls. in December, and 625 bbls. in November. However, there was one less rig in December and 5 fewer tests drilling than during November. Conditions in Utah remained the same in December as in November.

California Field Operations

By L. P. STOCKMAN

LOS ANGELES, Calif., Dec. 30.

Since the reported appearance of edge-water in the Long Beach Field a short time ago, two additional wells in the immediate vicinity affected have ceased flowing. No. 1 Andrews of the Shell Oil Co., brought in on May 21, from 3,268 feet, was flowing over 1,000 bbls. daily up until recently, when it dropped to 200 bbls., and finally stopped altogether. It will be deepened in an effort to secure production in the deeper sand. The second well to go off production during the week was the Getty Oil Co.'s No. 1 Nugent, which has been doing about 500 bbls. a day. This makes a total of 7 wells which have developed water trouble within a short time. In addition to the above two wells the following have gone to water: No. 2 Bess of the Bush-Voorhies Oil Co., No. 1 Doran of the Hager-Dennison Co., No. 1 Dodge, of the Henderson Petroleum Syndicate, No. 4 of the Marine Oil Co., and No. 2 Scoco of the General Petroleum Co. No. 2 of the A. T. Jergins Trust, now drilling at 3,785 feet, had passed through more than 800 feet of oil sand and it is the intention of the company to drill an additional 200 feet before making a production test. No. 10 Dabney, after being deepened to 3,195 feet, came back doing 650 bbls. daily, the oil testing 27 gravity. The Acme Oil Co. failed to get a well at 3,150 feet and has pulled the 6¼-inch oil string and drilled on to 3,450 feet. The Anchor Oil Co., drilling an offset well to No. 1 Jergins Community, struck a good oil showing at 3,445 feet. The well is at present standing cemented and when the cement is drilled out and the well put on production it should equal, and probably may surpass the Jergins well. The Bush Oil Co. drilled into bottom water in No. 1 Butler, at 4,460 feet. At 4,425 feet the well showed oil and gas, but upon drilling 35 feet further, salt water was found. The Metropolitan Petroleum Co. completed No. 1 Sleuman at 3,680 feet, late in the week, and it is flowing approximately 2,500 bbls. through 6¼-inch casing and testing 25 gravity.

The City Council of Long Beach has decided to bar oil refineries from the Long Beach Harbor district. The decision marks the end of a long drawn out fight by property owners, who proposed an ordinance which would permit the erection of a large oil refinery near the yards of the Craig Shipbuilding Co. If adopted, the ordinance would have opened a large area in the industrial district for refineries and kindred plants. The decision of the council prevents the erection or operation of refineries within the present corporate limits of the city, but it is possible, however, that the present restrictions may be modified later in order to permit the erection of complete refineries in the vicinity of Signal Hill.

Santa Fe Springs

The B. G. T. Oil Co., after losing two holes in the Santa Fe Springs Field, has contracted the drilling of the third hole to the McKeon Drilling Co. The General Petroleum Co.'s No. 6 Santa Fe, completed last week, is still holding up over 5,000 bbls. a day and is reported to be the company's second largest producer in the field. The Union Oil Co.'s No. 2 Howard, also completed last week, is flowing 3,450 bbls. under a casing pressure of 580 pounds. The oil is 29.5 gravity with a cut of 1.4 per cent emulsion. C. C. Julian, deepening his No. 1 well from the Bell sand to the Meyer sand, has reached 4,003 feet and should know the outcome of the additional drilling very soon. The Petroleum Midway is deepening No. 1 Foix, in an effort to reach the Meyer sand and has reached a depth of 4,025 feet. In the Santa Fe Springs west extension no material progress has been made and in the south extension, work on the well of the Petroleum Center Oil Co. is held up waiting for drill pipe.

The property surrounding the Norwalk State Hospital, which is possibly within the oil zone, cannot at the present time be used for any other than hospital purposes, according to the opinion of the attorney general of the State. The State Board of Control, having no jurisdiction over the property, is leaving the matter for the State Legislature to deal with. Mandamus proceedings instituted some time ago are still pending in the Supreme Court. The property was originally Government land given to the State for a hospital site. The suit filed against the Suveyor General is to secure a permit to drill for oil, but no decision has been rendered as yet. Several of the larger companies have entered informal bids, but in all probabilities, if the land is released for drilling purposes, it will be leased to the highest bidder.

Huntington Beach

The Amalgamated Oil Co. completed another deep producer in the Huntington Beach Field during the past week when No. 4 Pearce was placed on production. The well, drilled to 4,806 feet, was good for 2,000 bbls. of 27 gravity oil. The Mosier Special Oil Co., completed No. 1 Brown and re-drilled and deepened No. 2 Porter. The former, drilled to 4,365 feet, yielded only 200 bbls. and will probably be deepened, while the latter, producing from 4,436 feet, came in around 2,000 bbls. Three weeks ago the Holly Oil Co. brought in its No. 1 well, doing 1,500 bbls., after being deepened to 4,615 feet, and not to be outdone by the other deep producers in the field, the well increased its production to 2,750 bbls. The No. 1 Clark well of the Petroleum Midway Co. was to be a deep test well for the south central part of the field, but it has been held up for several months with a fishing job at 3,541 feet. The company is sidetracking several hundred feet of drill pipe, which could not be fished out. Both the Shell Oil Co. and the Standard Oil Co. have deep test wells drilling in different sections of the field.

Redondo

The latest well of the Chanslor-Canfield Midway Oil Co., No. 3 Torrance, has caused a good deal of speculation as to the potentiality of the Redondo Field. It has been the belief heretofore that the field was destined to be a producer of lowgrade crude, but with the completion of No. 3 Torrance, which came in around 800 bbls. of 28 gravity oil, the pessimistic predictions appear to be without foundation. Although this well is the largest producer, and also producing the highest gravity oil in the field, there are four others producing oil over 20 gravity. The new well is creating considerable interest because of the fact that it is only a short distance away and four feet deeper than one producing 18 gravity oil. In contrast to the large production and high gravity of the Chanslor-Canfield Midway well is the No. 1 Kirke of the Standard Oil Co., completed during the week at 3,500 feet, doing only 125 bbls. a day of 15 gravity oil. Two new companies have entered the field, the Hub Oil Co. and George F. Getty, both of which will start drilling operations in the near future.

St. Helens Petroleum Co. completed No. 8 Monterey, in the Montebello district, at 4,397 feet. The well, an excellent one for the field, is flowing about 2,500 bbls. of 30 gravity oil daily. In the Richfield district, the Petroleum Midway Co. added No. 15 Yarnell to that company's list of producers during the week. The well came in from a depth of 4,550 feet, doing 850 bbls. of 24 gravity oil.

Miscellaneous Drilling

The situation is not very promising in the Athens district, with the Potter Oil Co.'s well abandoned and the Union Oil Co.'s No. 1 Wagner held up on a fishing job. The Calpetro Oil Producers Syndicate, drilling in the Bellflower district, will drill out the cement within a week and the oil showing at 2,085 feet will be tested. The Midvein Oil Co., also to drill in this district, is hauling equipment and will probably spud in soon. Bandini Petroleum Co., one of the first companies to enter the territory in the vicinity of Bandini Station, several miles from Santa Fe Springs, is pulling the 6¼-inch casing from their No. 1 well, and the Fullerton Oil Co. has cemented the 8¼-inch casing for the sixth time in No. 1 Simons at 3,450 feet. Oakridge Oil Co. is rigging up No. 1 Bandini, and the Summit Oil Co., with a rig on its property, has done no further work. The wildcat wells in the vicinity of Compton and Downey have had no showings, although the latter well has reached a depth of 4,680 feet.

Another Standard Tanker

The Standard Oil Co. has placed another tanker in their recently established oil trade between Los Angeles harbor and New York. The vessel is the E. T. Bedford and marks the entry of nine oil carriers into the trade in the past three months. During the week the Byron D. Benson and the David McKelvy left for New York, each with about 80,000 bbls. of crude, while the Sun Oil Co.'s tanker Sabine Sun also left during the week with about 70,000 bbls. of crude for Philadelphia. Tanker shipments from the local port of crude and fuel oil during the week totaled approximately 750,000 bbls., some of which went to the East coast, some to the Associated and Shell companies' refineries at San Francisco to be refined, and the balance transported for commercial uses at different points.

New Work Started

Oil field operations reported to the State oil and gas supervisor show 24 new wells started as compared with 22 during the previous week. Three wells were abandoned, bringing the total to 269 for the year to date. The following new wells were started in southern California fields during the week:

Long Beach

Location		Well
29-4-12	Bartholomae Oil Syndicate	2A
29-4-12	Belridge Oil Co.	1
24-4-13	Cal. Co-operative Oil Syn.	1
29-4-12	Golden Eagle Oil Co.	1
20-4-12	Henderson Pet. Synd. (Dodge)	2
30-4-12	Maier-Yerkes	1
29-4-12	Oceanic Oil Co.	3
30-4-12	United Oil Co. (Hass)	3
19-4-12	Western Star Oil Co. (Campbell	2

Santa Fe Springs

4-3-11	Associated Oil Co. (Benton)	1
6-3-11	Geo. F. Getty	10
6-3-11	McKeon Drilling Co. (Boeseke)	2
6-3-11	Southern California Oil Co.	1
6-3-11	Union Oil Co. (Alexander)	5
6-3-11	Union Oil Co. (Bell)	19
5-3-11	Universal Consolidated Oil Co.	2

Huntington Beach

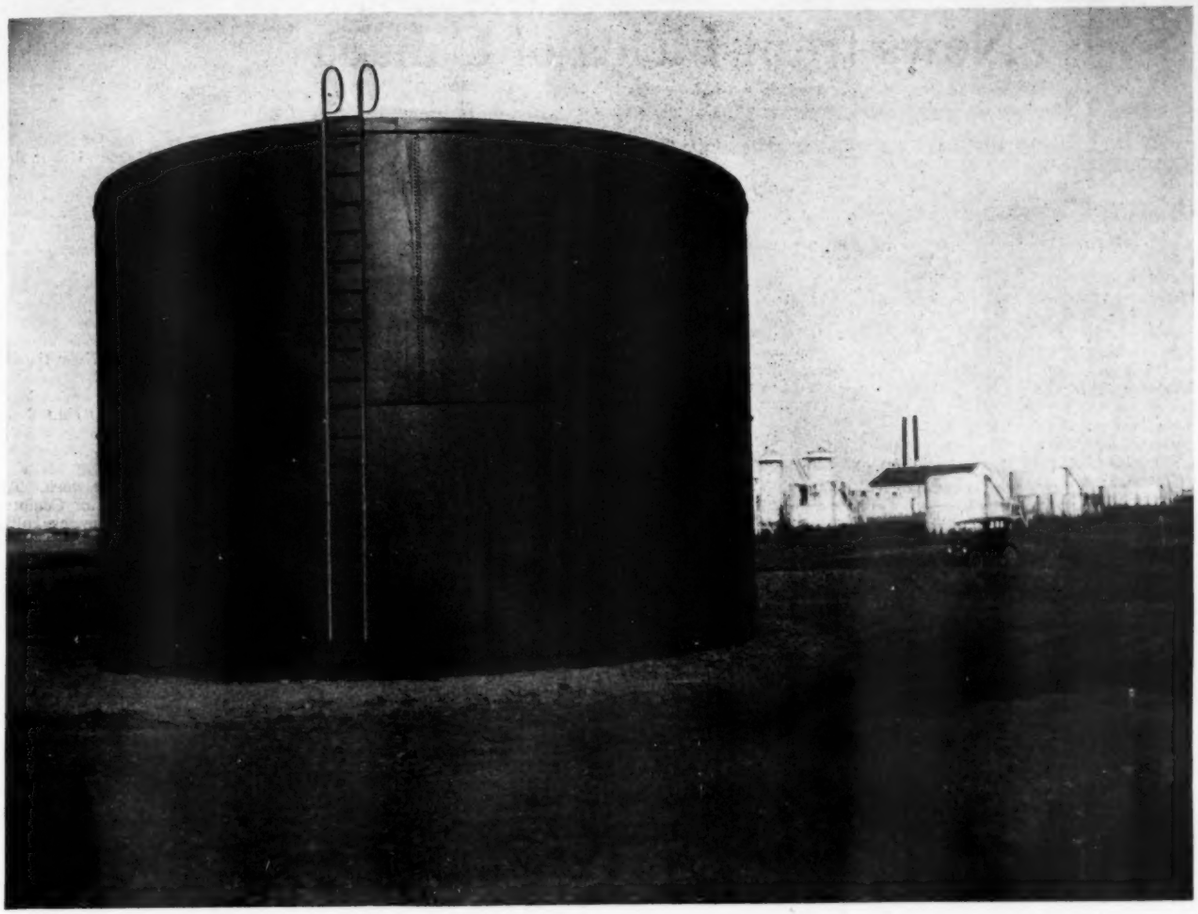
2-6-11	Jameson Petr. Corp. (Block B)	1
2-6-11	H. M. Mosier Special (Porter)	3
2-6-11	White Behr Petr. Syn. (Jackie Coogan	3

Redondo

9-3-14	Shell Co. (Torrance)	1

BRADFORD'S NEW REFINERY

BRADFORD, Pa., Jan. 2.—The Bradford Oil Refining Co.'s new plant located in East Bradford, will soon be turning out the products of the famous high grade Bradford crude. It has a capacity of 500 bbls. daily, but will later be increased to 1,000 bbls. The officers of the Bradford Oil Refining Co. are: J. H. Rose, president; J. W. Matthews, vice president; L. E. Mallory, jr., secretary and treasurer; James Lewis, sales manager. The directors are L. E. Mallory, jr., R. B. Johnston, H. G. Barcroft, J. W. Matthews, F. D. Korner, E. R. Barry and J. H. Rose. The company's offices are at No. 61 Main Street.



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Casper, Wyo. Sunburst, Mont.

Peerless Steel Company
Ardmore, Okla. Cement, Okla. Walters, Okla.
Wilson, Okla. Duncan, Okla.

M. & V. Tank Company
Wichita Falls, Texas

Standard Tank & Steel Works
Ranger, Texas Caddo, Texas
Graham, Texas Eastland, Texas
Cross Plains, Texas Breckenridge, Texas

BUTLER MANUFACTURING COMPANY

Kansas City, Mo. **Minneapolis, Minn.**

News from Fields of Canada

By VICTOR LAURISTON

CHATHAM, Ont., Jan. 1.

In the Sweetgrass district, southern Alberta, drilling operations generally are shut down, owing to severe cold weather. Coutts Sweetgrass Oils (Ltd.) (McLean), Section 1-1-15-4, is reported drilling in shale at 2,550 feet, with the casing following 2 feet behind the drill. The drillers believe no more water will be struck, and if harder shale is met, the casing can be set and the water shut off. Drilling on the Montana side, close to the border, is reported pretty generally shut down. Imperial Oil (Ltd.), Section 5-1-16-4, is reported to have recovered the tools from the hole after nearly two months' fishing, and will resume drilling at 1,340 feet. This test is west of the field and 6 miles west of Coutts. South of the border, the Illinois Pipe Line Co. is reported going ahead with its line from Sunburst to Coutts. For the present, the crude brought in through the line will be transported from Coutts to the refining centers at Regina, Sask.; Calgary and Vancouver, B. C., by tank cars. It is reported that the Senator Hogan interests in the Kevin-Sunburst Field have been looking over Lethbridge, Alta., as a prospective site for a 1,000-bbl. refinery, to be built next spring, following the contemplated organization of a $2,500,000 company to take over the Hogan oil holdings in the Sunburst Field. At present, chances are understood to favor Great Falls, Mont., as the site.

Oil Lands Exploration Co. (Sommerville) is getting ready to resume work on No. 1, Section 2-1-15-4, shut down at about 400 feet, and has located No. 2 in Section 36-1-11-4. The Spartan Oil Co. is starting work on a new test on the Montana side, 2½ miles south of Coutts, while Gibson & Conners are shipping a rig for a new test on the P. A. Lerum farm, Section 11-37-2w, 1½ miles southeast of the Coutts-Sweetgrass test.

Geological Opinion Differs

Among Canadian geologists there seems to be some difference of opinion as to whether the Sweetgrass Arch, commercially productive in the Sunburst Field of Montana, extends any distance north of the international boundary. Some geologists believe it stops short of the boundary. The earlier investigations of the Canadian Geological Survey indicated, however, that it extended northward into Alberta approximately 90 miles. Thus it includes the productive Bow Island gas field, while the Medicine Hat gas field lies on the northeastern edge of the arch. The outer contour lines show the top of the Bearpaw shale, the dip of the beds showing only a dip of about 10 feet to the mile as the formations rise toward the Sweetgrass Mountains. The recent drilling in the Quarantine Reserve, however, indicates between the Sunburst No. 1 and the Coutts-Sweetgrass (McLean) well a dip of about 70 feet to the mile, which is interpreted by some operators as revealing a syncline north of the Montana production.

The Bow Island gas field, located, according to the earlier geologists, on the northerly extension of the Sweetgrass Arch, developed gas in commercial quantities some 400 feet above the base of the Colorado, the initial open flow production of individual wells ranging from 5,000,000 to 29,000,000 cubic feet a day. This field, which for the past 10 years has supplied Calgary and intermediate points, has been largely exhausted. At Medicine Hat, on the northeast fringe of the arch, the Eagle sandstone is productive of dry gas in commercial quantities at 1,000 to 1,200 feet, but recent deeper drillings in Many Island Lake district have indicated a commercial production of wet gas between 1,700 and 2,000 feet. On the west side of the Sweetgrass Arch, the Eagle sandstone carries water, the probable intake being from the Milk River district, where the formation is exposed.

So far, no oil has been found in the Colorado shales north of the boundary, all production being in the lower Cretaceous (the horizon between the Colorado shales and the Jurassic or Ellis) classified by American geologists as the Kootenai. The Athabaska tar sands are in this horizon.

Earlier drilling east of the present operations in Alberta produced no definite results. United Oils No. 3, Section 31-55-10-4, twenty miles north of the boundary shows 110 feet of maltha at about 150 feet above base of the Kootenai. This test penetrated the limestone or carboniferous formation some 300 feet, with showings of both oil and gas. Gas in large quantities was encountered at about 2,300 to 2,500 feet, and later was drowned out by water. The well was deepened for oil, finishing at 3,705 feet, without commercial production. The Grand Trunk Pacific Syndicate drilled a few hundred feet north of the boundary, near West Butte. In this well the sand in the same horizon as United No. 3 revealed a vaseline like substance. About 8 miles further north, the Beaver Oil Co. encountered similar conditions in the Kootenai. These thick deposits of inspissated petroleum were valueless, except as indicating a possible oil horizon where structural conditions were more favorable.

Southern Alberta

Outside the Sweetgrass district, in Many Island Lake district, near Medicine Hat, the Community Oils (Ltd.), Section 19-14-1-4, has shut down for the winter after three freeze ups. The test is in a brown shale at 2,000 feet. West of Nanton, in Willow Crek district, Imperial Oil (Ltd.) Section 29-14-2-5, is reported to have encountered oil at about 3,000 feet.

Recent inquiries in regard to the Prudential Oil Co. from The Pas, Manitoba, indicate that some investors have not closely followed the development in the Okotoks Field. The Prudential Oil Co. started, at the time of the Calgary boom, a test on Section 1-20-3-5, in the Okotoks Field. Operations were hampered by a fire which destroyed the derrick, but ultimately a small production, 50 to 100 bbls. a day, was encountered around 2,400 feet. The company, however, was in financial difficulties and although desperate efforts were made by the president and a few other directors to raise additional funds to complete the development, the enterprise at last went into liquidation and the properties passed into the hands of W. E. McLeod, of Calgary, who organized them as the Canada Southern Oil & Refining Co. The new owners constructed a small refinery to handle the output and the well is still productive to the extent of 5 bbls. or less a day.

In the Monitor district, eastern Alberta, Imperial Oil's (Ltd.) Misty Hills test, Section 29-34-4-4, is unofficially reported down nearly 3,600 feet, with 6-inch pipe. In Irma-Viking-Wainwright district, the Imperial Oil's (Ltd.) Grattan No. 1, Section 18-45-7-4, has been finished as a gasser, unofficially estimated at 13,500,000 cubic feet a day. Imperial Oil (Ltd.) will drill a new test in another portion of the Irma-Viking-Wainwright district.

British Petroleums (Ltd.), Section 36-45-7-4, is reported down between 1,300 and 1,400 feet, making about 50 feet a day. It is unofficially reported that a fair oil showing was met at 1,200 feet. This test is 5 miles north of Wainwright and 122 miles east of Edmonton. The company plans to drill a series of 5 tests, all to be under way within 6 months.

The Department of the Interior at Ottawa has made a reservation of the natural gas rights in the northeast quarter of Township 47-13-4 for the exclusive use of the town of Viking, the incidental petroleum rights being retained by the government, but withdrawn from leasing.

In Peace River district, northern Alberta, additional casing is being teamed to the Canadian Petroleums (Ltd.) (San Joaquin No. 2) deep test at Three Creeks, Section 12-85-21-5.

In Athabaska district, it is reported the Gen. W. Bethune Lindsay Syndicate, which has been conducting tar-sand experiments in England, will ship a tar-sand reduction plant into the Fort McMurray area this winter, to be set up and operated in the spring.

In the Ontario Field, there has been an almost general shut down of drilling operations for the holidays. In Lambton County, Union Exploration Co.'s No. 10, Dawn Township, is held up by a bad crevice at about 1,190 feet and is shut down. Union Exploration Co.'s No. 18 Connolly, Dover Township, Kent County, is down 50 feet and shut down. This is a test of the Trenton limestone. In Raleigh Township, Kent County, Union Natural Gas Co.'s No. 245 has landed the drive pipe. Near the Romney-Tilbury line, Coste & Co.'s deep test is 450 feet in the Trenton limestone, with water in the hole, and is shut down temporarily. Eagle Oil & Gas Co.'s No. 1, near Arner, in Essex County, is reported in the Trenton limestone. B. Jasperson is drilling a test about 5 miles north and west of Kingsville and the same distance north and east of the Eagle No. 1. In the Petrolia Field, Lambton County, Sam Hamlin, of Petrolia, has bought the Wilson oil farm of 50 acres, on the Blind Line, from the Dominion Savings & Investment Co.

Late News from the Fields

TULSA, Okla., Jan. 3.

The outstanding piece of field news for the latter part of the week in Oklahoma was Prairie Oil & Gas Co. and Wilhoit's No. 1 Hully, SE cor. NW, Section 5-9-10, in the newly opened pool in Hughes County, where steel line measurement showed the top of the sand at 3,370 feet instead of 3,420 feet, as was first reported. The well made 75 bbls. in 6 hours, but probably will be a larger well when drilled in.

Several more wells completed in Section 4-15-9, Creek County, where The Texas Co. recently got a 4,000-bbl. well, makes that section one of the most important producing areas in Oklahoma. The Texas Co. completed four more wells in the section on the Hawkins lease, in the NW quarter, their initial daily production aggregating 4,700 bbls.

Osage County

At Burbank, the Cosden Oil & Gas Co. completed No. 13, C SW NE NE, Section 17-26-6, sand at 2,890-2,951 feet, making a 200-bbl. well after a shot with 75 quarts. Kay County Gas Co.'s No. 8, CSL SE NW, Section 2-22-7, was plugged back to sand at 2,400-50 feet from a total depth of 2,645 feet, and was making 15 bbls. on the pump.

Creek County

The Skelly Oil Co. and Jackson's east offset to the Hiram Wilson well, which found water in the Dutcher sand, in the SW cor. NW NW, Section 9-15-8, has now exhausted the water and is swabbing about 7 bbls. of oil an hour. It may be shot later.

The Texas Co.'s No. 1 Narchubby, NE cor. SE SW, Section 26-15-8, was showing for about 35 bbls. a day from sand at 3,213-3,219 feet. Iron Mountain Oil Co.'s No. 7 Bear, NW cor. SE, Section 3-14-8, sand at 2,510-70 feet, is a 120-bbl. well after the shot. Oklahoma Producing & Refining Co.'s No. 2 Bearhead, NW cor. NE SE, Section 10-14-8, sand at 2,443-87 feet, is a 40-bbl. well after the shot. Prairie Oil & Gas Co.'s No. 2 Coffee, SW cor. SE NW, Section 23-14-8, is dry and abandoned at 3,336 feet.

Skelly Oil Co.'s No. 1 Jacobs, C NE NE NE, Section 33-14-8, sand at 2,465-2,512 feet, is showing for about 10 bbls. a day after the shot. Iron Mountain Oil Co.'s No. 1 Pick, NE cor. NW SE, Section 34-14-8, sand at 2,474-2,547 feet, is a 5-bbl. well after the shot. The Bu-Vi-Bar Oil Co. and the Independent Oil & Gas Co. have a 20-bbl. well in No 1 Sarvanoke, SW cor NW, Section 35-14-8, after a shot in sand at 2,514-76 feet

The Texas Co. completed No. 2 Hawkins, NE cor. NW NW, Section 4-15-9, sand at 2,967-84 feet, and it was making 900 bbls. a day. No. 3 Hawkins, NE cor. NW, Section 4-15-9, is a 1,200-bbl. well from sand at 2,905-25 feet. The company's No. 5, CSL SE NE NW, same section, started at 1,500 bbls. daily from sand at 2,938-48 feet. No. 6, CEL NE NW, Section 4-15-9, is an 1,100-bbl. well from sand at 2,913-2,925 feet. The White Oil Corporation has abandoned No. 1 Robinson, NE cor. SE NW, Section 32-15-10, dry at 3,255 feet. In Okmulgee County, Barbara Oil Co.'s No. 3 Lasley, SW cor. NW NE, Section 25-13-12, is dry and abandoned at 2,993 feet.

Garvin County

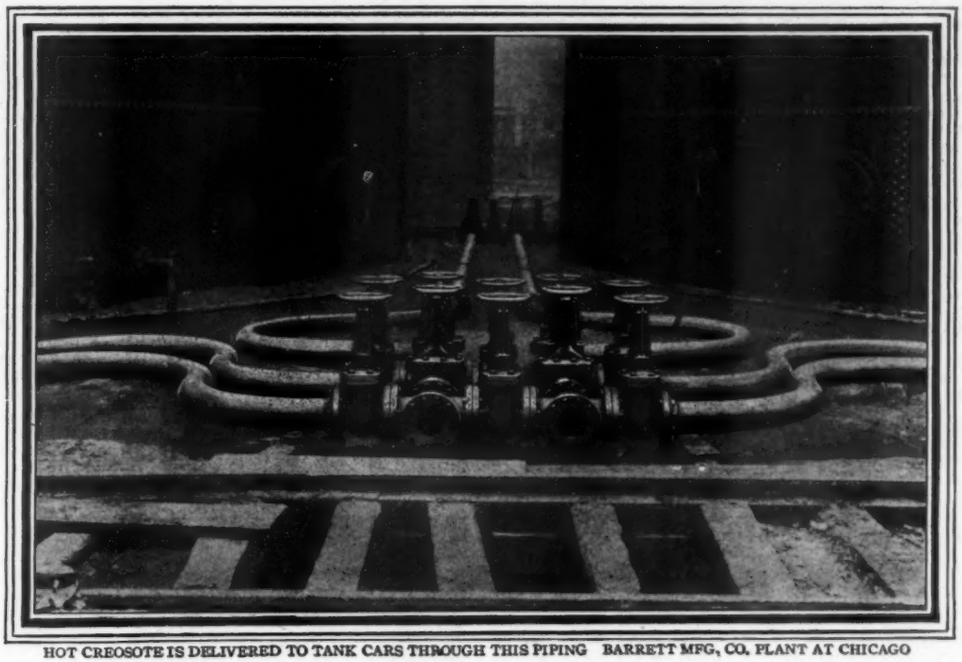
In the Robberson Field, Garvin County, Concord Oil Co.'s No. 6 Harkreader, CSL SE SE, Section 11-1n-3w, sand at 1,438-77 feet, is a 150-bbl. natural well. Magnolia Petroleum Co.'s No. 4 Newberry, CNL NE SW SW, Section 13-1n-3w, was swabbing 40 bbls. a day from sand at 1,600-40 feet. Texas & Pacific Coal & Oil Co.'s No. 4 Newberry, C E half NW SW, Section 13-1n-3w, sand at 1,585-96 feet, started at 125 bbls. The company's No. 2 Pearce, NW cor. NE SW, Section 13-1n-3w, sand at 1,533-34 feet, made 500 bbls. the first 24 hours instead of 1,000 bbls., as was at first reported.

Okfuskee County

In Okfuskee County, Robinson & Letcher's No. 1 Harrison, SE cor. NW, Section 2-10-9, total depth 3,142 feet and plugged back to 3,135 feet, shot twice, is a 125-bbl. completion. In Noble County, Humphreys Petroleum Co.'s No. 5 Plumb, CEL SE NW, Section 10-24-1w sand at 2,606-45 feet, is a 15-bbl. well on the pump.

Kansas Completions

Six of the 10 Kansas completions this week were dry. The largest well of the week was in Greenwood County, where the Barrington Oil Co.'s No. 4 Burkett, SW cor. NW NW, Section 24-23-10, came in at 400 bbls. a day after a shot in sand at 2,050-2,125 feet. The only other Greenwood County completion was Vickers & Johnson's No. 1 Edwards, SE cor. NE NE, Section 13-23-10, which is dry and abandoned at 2,654 feet after finding a small showing in the second break in the lime at 2,633-40 feet.



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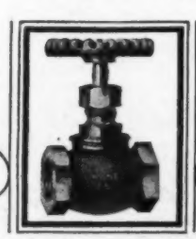

Crane 75 Low Pressure Globe Valve

Butler County had one dry completion. It was Holden & Henderson's No. 1 Irwin, SW cor. NE NE, Section 9-26-6, drilled to 2,810 feet. Davis and the Skelly Oil Co.'s No. 2 Van Winkle, SW cor. NE SW, Section 19-27-6, sand at 2,681-2,737 feet, was shot and made 35 bbls. of oil and 18 bbls. of water the first 24 hours. In the Fox-Bush Field, Johnson & Osborne's No. 1 Houston & Brooks, SE cor. NW, Section 24-28-5, sand at 2,726-51 feet, started with 30 bbls. of oil and 3 bbls. of water. Reynolds & Ward's No. 2 Meyers, SE cor. NE NW, Section 35-28-5, is a 40-bbl. well from sand at 2,780-93 feet after the shot.

Marion County had one completion. which was dry. It was Bird & Hawley's No. 1 Davis, SE cor. SW NW, Section 4-22-5, drilled to a total depth of 2,510 feet.

Cowley County had three completions, all dry. W. E. Crumm's No. 1 Hiatt, SE cor. Lot 32, was abandoned at 2,870 feet. Ramsey & Lloyd's No. 1 Keeley, NE cor. NW, Section 27-31-7, is dry and abandoned at 3,290 feet. Gillette & Kehr's No. 1 Black, SW cor. NE, Section 26-34-6, is dry and abandoned at 2,680 feet.

Miscellaneous Completions—Oklahoma

In Osage County, the Wasage Oil Co.'s No. 2, C NE SE, Section 28-29-11, is dry and plugged at 949 feet. At Burbank the Phillips Petroleum Co. and the Skelly Oil Co. was drilling at 2,990 feet and flowing at the rate of 400 bbls. The companies shot No. 6, C SW SE NE, Section 25-27-5, which came in at the rate of 2,000 bbls. a day naturally, and it is a 250-bbl. well. No. 10, C SE NW SW, Section 19-27-6, is estimated good for 1,850 bbls. a day naturally from sand at 2,890 feet. No. 12, CEL SE NE SW, Section 19-27-6, came in at 1,800 bbls. on December 11 and was flowing at the rate of 1,200 bbls. when last reported. No. 15, CNL NW NE SW, Section 19-27-6, sand at 2,896-2,948 feet, is estimated good for 900 bbls. a day to start. The Tidal Osage Co. has a 500-bbl. well after the shot in No. 11, CSL SW SE SW, Section 6-26-6, sand at 2,867-2,924 feet. The Carter Oil Co.'s No. 9, CSL SW SE NE, Section 9-26-6, sand at 2,837-2,881 feet, was flowing at the rate of 65 bbls. a day after the shot. The company's No. 7, C NW SE SE, Section 9-26-6, is a 200-bbl. well after a shot in sand at 2,869-2,913 feet. The Western American Drilling Co.'s No. 5, C E half NE, Section 28-24-10, is a 35-bbl. well after the shot in sand at 1,270-86 feet. The 59 Osage Oil Co.'s No. 35, C N half S half NW, Section 9-24-12, started at 8 bbls. a day after a shot in the Bartlesville sand at 1,634-62 feet. No. 36, C N half SW NE, Section 9-24-12, is an 8-bbl. well after a shot in sand at 1,640-1,705 feet. A. D. MacDonald's No. 1, SE cor. NW SE, Section 26-23-12, Burgess sand at 1,581-1,600 feet, was shot and started at 20 bbls.

In Creek County, Bartlett and others' No. 3 King, SE cor. SW, Section 17-18-9, is dry and abandoned at 2,700 feet. The Transcontinental Oil Co.'s No. 1 Fry, NW cor. SE, Section 14-17-8, sand at 2,595-2,621 feet, is a 10-bbl. well after the shot. The Jomac Oil Co.'s No. 3, CNL NW SE SW, Section 10-16-9, is dry and abandoned at 3,006 feet. The Roland Oil Co.'s No. 1 Williams, C NW SE NW, Section 14-16-9, is dry and abandoned at 2,993 feet. The Texas Co.'s No. 1 Hamilton, NE cor. NW SE, Section 26-16-9, sand at 2,955-74 feet, started at 175 bbls. a day.

In Okmulgee County, the Wheeler and others' No. 1 Jackson, NE cor. SE SE, Section 33-15-12, started at 200 bbls. a day after a shot in sand at 2,125-2,140 feet. The Black Petroleum Corporation's No. 2 Love, SW cor. NW NE, Section 16-14-14, was dry and abandoned at 2,602 feet. The Oklahoma Oil Co.'s No. 6 Colbert, SW cor. NW SE, Section 16-14-14, was shot in sand at 1,767-78 feet and started at 15 bbls. a day.

In Okfuskee County, the Indiahoma Refining Co. and the Independent Oil & Gas Co.'s No. 1, SW cor. SE, Section 25-10-11, got a hole full of oil from sand at 3,077-99 feet and the well was flowing by heads.

In Carter County, the Pure Oil Co.'s No. 30 Lowrey, C NE SW SE, Section 4-4s-3w, top of the sand at 2,655 feet, was flowing at the rate of 100 bbls. a day

CREEK COUNTY, OKLA. SECTION OBTAINS BIG INITIAL PRODUCTION

A total of initial daily production of 12,620 bbls. was added to Section 4-15-9, Creek County, Okla., during the 11-day period between December 14 and Christmas. Five of the wells belong to The Texas Co. and are located on the Hawkins farm in the northwest quarter of the section. Three belong to the Gypsy Oil Co. and are located on the Clanton lease in the northeast quarter, and one was completed by the Eddy Oil Co. on the Ship lease in the northeast of the northwest quarter.

The largest well of the group was The Texas Co.'s No. 4 Hawkins, which came in at 180 bbls. an hour. The wells, their number and first 24-hour production are as follows:

	Bbls.
The Texas Co. No. 4 Hawkins	4,320
The Texas Co. No. 2 Hawkins	900
The Texas Co. No. 3 Hawkins	1,200
The Texas Co. No. 5 Hawkins	1,500
The Texas Co. No. 6 Hawkins	1,100
Gypsy Oil Co. No. 2 Clanton	720
Gypsy Oil Co. No. 3 Clanton	1,180
Gypsy Oil Co. No. 7 Clanton	600
Eddy Oil Co. No. 1 Ship	1,200

LATE GULF COAST

HOUSTON, Tex., Jan. 2.—Late in the past week the Yount-Lee Oil Co. finished No. 5 Merchant on the north side of the Hull Dome at 3,775 feet. It is making 6,000 bbls. with 80 feet of strainer set. The oil shows 26 Baume. It is the deepest producer to date on that side of the hill.

The Mecom Oil Co. is setting 40 feet of strainer in No. 1 Mecom in 40 feet of sand at 3,552 feet. It is located 200 feet south from the Higgins Oil & Fuel Co.'s No. 5 Merchant, bailing at 3,130 feet. The Higgins Co. is also bailing No. 1 Taylor at 2,680 feet. The Republic Production Co.'s No. 6 Hannah flowed at the rate of 500 bbls. at 2,470 feet, but eased off and will be put on the beam. It is on the west side of the dome. On the east side, the same company's No. 18 Dolbear is bailing at 1,435 feet after being worked over again. The Sun Co. has a pumper in No. 4 Carr on the south side at 2,200 feet. In the old part of the West Columbia Pool, the Humble Oil & Refining Co.'s No. 35 Japhet is flowing 1,000 bbls. at 3,175 feet.

The Sinclair Oil & Gas Co. is abandoning No. 1 Lee at Blue Ridge at 3,820 feet after trying to work it over. The same company's No 16 Masterson at Damon Mound, is pumping 100 bbls.

In the old Spindletop Pool, the original Gulf Coast productive territory, the Unity Oil Co.'s No. 80 McFadden is credited with an initial output of 75 bbls. per day at 960 feet, and Wilson & Broach's No. 4 Joint is making 35 bbls. on the beam at 735 feet. At Batson the Gulf Production Co. is rigging No. 153 Wing. The Kirby Petroleum Co.'s No. 1 Hodges is below 2,435 feet and No. 1 Christian is deepening at 2,450 feet. The Gulf Production Co. has a pumper in No. 51 Hardin-Tarver on the north side at Sour Lake. A derrick is up for No. 52. The Sun Co. is rigging No. 1 Sessler at Saratoga North of Moonshine Hill. In the Humble Pool the Trinity Oil Co. (J. J. Castell and associates) deepened No. 4 Bart to 1,200 feet and it is good for 25 bbls. per day. The same company is bailing No. 8 Bart at 815 feet. The company plans to drill 18 tests during 1923, trying for the sand at 1,200 feet.

On the northwest side at Orange, the Kishi Syndicate's No. 8 Kishi is drilling below 3,765 feet and No. 20-E is below 3,910 feet. No. 1 Bland is drilling at 3,000 feet. No. 20-E is in the northwestern corner of the 30 acre tract. The Syndicate has a derrick up for No. 1 Smith-Foreman in the old part of the pool, located in the northeast corner of the 7½ acres.

The Gulf Production Co. is resetting in No. 1 McGuire on the east side of Cow Bayou, after working over. The same company is starting No. 6 Chesson, and No. 3 Winifree and working over No. 3 Hager fee, and No. 2 Moore-Hager. The Atlantic Oil Producing Co. has a derrick for No. 1 Grubbs The Orange Petroleum Co.'s No. 4 Winifree pumped at the rate of 400 bbls. per day for 30 hours and then quit. The power is being repaired.

In the Edgerly (La.), Pool, the Coastal Petroleum Co. is tubing No. 1 Hunter. It came in about December 12, flowing 1,000 bbls. at 2,850 feet. In the Thrall Field in Williamson County, the proposed deep test of the Magnolia Petroleum Co. is drilling below 2,435 feet. It is on the Stiles lease and will be drilled to 4,000 feet if nothing is developed above that depth. The company has 70 of the 120 wells in the field. McDaniels & McNeil's No. 1 Schram, located 4 miles south of the Stiles, is drilling at 1,700 feet. Cummings & Co.'s No. 1 Alexander is below 2,235 feet.

E. W. LONG

The Calorizing Co., Pittsburgh, Pa., has promoted E. W. Long, who recently joined their sales department, to the sales managership of their southwestern division, comprising southern Kansas, Oklahoma, Louisiana, Texas and Mexico. Mr. Long is well acquainted with the territory he is taking over as he was formerly connected with the engineering department of the Gulf Refining Co., at Port Arthur, Texas, and for the past four years has been engaged in sales work, which kept him in close contact with the southwestern district.

WILDCATTING IN SPAIN

In Navarre, Guipuzcoa, Burgos, Alava and Logrono, Spain, there are a considerable number of companies, more or less substantial, engaged in the search for oil, says Reuters Trade Service. The headquarters of the movement seem to be at San Sebastian, where British, French, American, and other interests are to be met with. Up to the present none of the tests has given the results hoped for, but as many more are being made or are planned, it is possible that in the end better results will be obtained.

SURVEY OF STEPHENS-EASTLAND FIELDS AS AN OPERATING GUIDE

The oil fields of Stephens and Eastland Counties probably are second to none in the State of Texas for the hazards they offer to the operator. Not only are the geologic conditions such that the fields are hard to find, but even when found they must be developed carefully, with due regard to previous experience in this region, if they are to yield profits. Every aid to exploration and development must be utilized to make operations in these counties successful.

In this connection a report just published by the United States Geological Survey, describing the conditions in the Ranger oil field, will be of interest both to geologists and oil operators who have to do with north-central Texas. This report, which was prepared by Frank Reeves and is numbered Bulletin 736-E, contains maps showing the configuration of the main oil-yielding sand at Ranger, as well as one showing the structure indicated by the surface rocks, together with descriptions of outcropping formations, the formations that are drilled through, and the oil-yielding beds. The report points out the fact that the oil produced in the Ranger Field has been obtained from nine distinct horizons, although by far the greatest part of it has come from the McClesky sand. It shows that most of the oil in the Ranger Field is in anticlinal areas, though anticlinal structure may not easily be discovered by a study of the surface rocks, for the anticlines in the deep-lying rocks and those at the surface are very dissimilar. The knowledge that oil will be found principally on anticlines, however, is of value to the operator, for after a few wells have been drilled he can tell the direction in which the field probably will extend and the direction in which he must proceed cautiously with his drill in order to avoid useless exploration outside the limits of the oil pool.

Comparison of the structure of the outcropping beds with that of the oil sand shows that the oil sand has been more closely folded than the surface beds, but that the axes of the anticlines and synclines at the surface commonly agree rather closely with the axes of the anticlines and synclines of the oil-yielding beds. It follows, therefore, that it is possible by a close study of the surface to select drilling locations that will give a maximum chance of striking oil, and also to observe and avoid synclinal areas where the chances of production are relatively slight.

The thickness of the producing beds is apparently of more than ordinary significance in the Ranger district. In a number of outlying fields oil was found in sandy beds in the black lime, but in the Ranger Field the main producing bed was a true sand, and its productivity was apparently directly proportionate to a thickness in excess of 25 feet, indicating that one streak in this sand was saturated throughout. The yield, however, was much lower than that commonly obtained from good oil sands, the average for the whole field probably being not more than 1,000 bbls. an acre, although individual leases produced more.

Many other facts regarding the Ranger Field, which are useful because they probably apply in part or in whole to the surrounding region, may be learned by studying the maps and text in this report. A part of the area covered by the report is still undrilled, and Mr. Reeves recommends drilling at certain places.

KEIM REPRESENTS STACEY BROS.

The Stacey Bros. Gas Construction Co. of Cincinnati, Ohio, will henceforth be represented in Oklahoma and North Texas by J. J. Keim, of Tulsa, who is president of the Keim Tank Construction Co. Mr. Keim's office is in the Mayo building, in Tulsa.

These three De Laval Crude Oil Purifiers were delivered to the Oklahoma lease on which they are installed, connected up and put in operation before the building which now houses them could be completed.

What would you do with a 600-barrel well producing 13% tight emulsion?

Would you be satisfied to get as much oil as you could from the 87% of fluid and burn the other 13%? Or would you try to get an extra 60 or 70 barrels of crude a day from the b. s.?

That is just what the three De Laval Crude Oil Purifiers, shown in the above illustration, are doing. The crude they are handling is from the Dutcher sand of the Bristow, (Okla.,) Field. As it enters the Purifiers it contains 13% b. s. The crude discharged from the centrifugals contains an average of two-tenths of 1% b.s. There is scarcely a trace of oil with the water and dirt discharged from the machines.

Very little of the production coming from this sand can be satisfactorily or economically handled by ordinary lease methods. That is why De Laval Crude Oil Purifiers have been installed on this lease and on several other leases in the Bristow Field.

Even in other fields where the crude produced lends itself fairly well to ordinary treating methods, De Laval Purifiers have paid for themselves in a few months with the savings they effect.

Mail the coupon for further information regarding these money - making centrifugals.

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Refiners Hold New Gasoline Quotations

Next Ten Days Will Determine Strength of Prices. Pennsylvania Crude Advance Has Psychological Effect.

By J. B. Gambrell

The Group 3 market has passed a rather uneventful week in so far as actual business is concerned. The chief feature of interest has been the solidarity developed among refiners in regard to the new schedule of gasoline prices and sales managers in North Texas, Oklahoma and Kansas are now asking practically the same prices for their New Navy product.

While refiners interviewed on the subject express themselves as entirely satisfied with the market's progress and declare the trade is readily accepting the new order of things, it is generally felt in marketing circles that the real test of the strength of the present prices will come within the next 10 days or two weeks, for though a number of refiners as much as two weeks ago came to the conclusion, after a consultation with their auditing department, that they could no longer afford to operate on the old range of prices and accordingly advanced their quotations, it was not until December 26 that this sentiment crystallized to the point where the majority of refiners detemined upon such action.

Holidays Dull Period

Since that time the new refined oil structure has not had a fair trial. The interim between Christmas and New Years is always an extremely dull period. Most of the refiners are busily checking up the odds and ends of their business and making plans and preparations for the coming year. Jobbers, on the other hand, generally try to avoid carrying over into the new year excessive inventories and buy only enough to meet their immediate requirements.

With these conditions in mind it would be manifestly unfair to judge the success of the present movement for higher motor fuel prices on the volume of business transacted since Christmas. For it is doubtful if refiners would have done much more of a domestic business even if prices had remained at the old level of 10¼ cents, for New Navy. With the turn in the calendar, however, the next two weeks should clearly demonstrate just what the buyers' attitude is toward the new quotations.

While there have been other times in the past when refiners have endeavored to regulate their business on what they considered a sound industrial basis, the writer has never witnessed such a movement where there was the overwhelming unanimity of opinion among refiners that there is now. Practically every refiner in the field, big and little, has posted the schedule of new prices and expressed his determination to maintain them or quit business.

Pennsylvania Advance Helps

One of the events of the past week which has tended to further strengthen refiners in their determination to get better prices, was the 25 cent advance in Pennsylvania crude. This advance, which came somewhat as a surprise to most oil men in this territory is looked upon by many Mid-Continent refiners as indicative of a similar raise in crudes in this territory some time in the near future. There seems, however, to be a wide divergence of opinion as to when such an advance will come. Some of the most optimistic refining executives believe that it will materialize within the next 10 days, while others who have made a close study of production conditions and the statistical position of the industry, contend they can see no justification for an advance at this time or for 60 or 90 days at least.

Regardless of when the major crude factors decide it is necessary to give production a stimulus through the medium of an advance in price, the change in Pennsylvania crude could not have come at a more opportune time from a psychological standpoint. Refiners of the forward looking type have long realized that they had but one or two alternatives in the present situation—they could either curtail their operations to a point where consumption would absorb their output or maintain prices by the storage of their surplus products. The Pennsylvania advance apparently has committed the Mid-Continent refiners to the latter course.

The logic of such a policy from the standpoint of the refiners is obvious. Practically every one connected with the oil industry in any capacity is anticipating higher crude prices during 1923. As the refiners see it, they must by all means hold on to their present crude connections if they expect to participate in the good times predicted for the present year. They point out that if they are forced to relinquish a portion of their crude accounts now it will be almost impossible to wean these connections away from the large pipe line organizations during the coming spring and summer, when demand is at its peak.

Comparison of financial results from various grades of crudes, assuming 45 cents refining cost and 20 cents gathering and transportation cost and 10 cents average premium. Gasoline at 10¼ cents, kerosene at 5 cents, gas oil 12½ cents and fuel oil 2 cents per gallon. Showing impossibility of even high gravity crude refiners breaking even under such conditions, and how the present low gasoline prices take away the advantage usually held by the refiner of high gasoline content crude.

	33 to 35 Gr. Crude	35 to 37 Gr. Crude	37 to 39 Gr. Crude	39 to 41 Gr. Crude	41 to 43 Gr. Crude	43 to 46 Gr. Crude
Posted price	$1.25	$1.40	$1.60	$1.80	$2.00	$2.00
Premium	.10	.10	.10	.10	.10	.50
Transporting, refining and selling costs	.65	.65	.65	.65	.65	.65
Total costs	$2.00	$2.15	$2.35	$2.55	$2.75	$3.15
Yields of Products						
Gasoline	28%	30%	34%	37%	42%	50%
Kerosene	15%	14%	14%	12%	11%	8%
Gas Oil	30%	18%	16%	16%	14%	12%
Fuel Oil	40%	36%	33%	33%	30%	27%
Losses	2%	2%	3%	2%	3%	3%
Realizations	$1.83	$2.11	$2.24	$2.31	$2.48	$2.73
Apparent loss	.12	.04	.11	.24	.27	.42
Realizations if gas was 14c	2.22	2.56	2.74	2.86	3.10	3.47
Profit with 14c gasoline, other prices remaining same	.22	.41	.39	.30	.35	.32

Position Justified

No one questions the justice of the refiners' present position. The only difference in opinion seems to lie in what is the practical method of accomplishment. Undoubtedly refiners are entitled to better prices for their gasoline than they have been receiving during the past month or so, for while no one has accurately determined just what the advance in dollars and cents amounted to when the Prairie inaugurated its new purchasing policy, it is conceded that the cost of raw material to refiners was considerably increased. Some refiners have figured that the new crude prices represent a base increase of 27½ cents per bbl. which is probably not far out of line when it is remembered that the majority of refiners operate only on the higher gravity oils.

In this connection it is interesting to note how the recent low price of gasoline in conjunction with the classification of crudes has taken away the advantage formerly held by refiners operating on the high gasoline content crude. To bring out forcibly this condition a table is herewith inserted which shows that with gasoline at 10½ cents, kerosene at 5 cents, gas oil 2½ cents and fuel oil 2 cents, the higher gravity runs the greater the loss. While the allowance of 65 cents for transportation, refining and selling costs may be excessive in the case of particularly efficient refining organizations, the estimated premium of 10 cents on the first five grades is extremely low and will more than offset any inaccuracy in that respect, as the premium paid by independent refiners will average approximately 25 cents.

Question of Blends

Reverting to the spot situation another development which has tended to strengthen refiners' position is the action of manufacturers of natural gasoline. When the movement for better prices for motor fuels started one of the greatest obstacles it encountered was competition from blends at prices which were below the quotation for straight run products, largely due to the feeling in certain quarters that a blend of naphtha and natural gasoline was an inferior product to the straight run New Navy grade.

A rather interesting situation has developed out of a discussion of this subject between refiners and manufacturers of natural gasoline held during the past week. At this meeting manufacturers of natural gasoline made the point that much of the disfavor with which blended motor gasoline is looked upon in certain quarters was due to sales arguments of refiners in many instances where their trade was given to understand that the blended products were much inferior to straight run gasoline and, as a consequence blenders had found it impossible to maintain their prices on a parity with refinery products. Such refiners are understood to favor doing away with any name such as motor gasoline which would tend to differentiate between the two products.

Some of the leading manufacturers of natural gasoline pointed out that the only way to prevent the recurrent period of depression in so far as the natural gasoline industry was concerned was for the larger concerns to evolve some plan whereby they could purchase the products of the smaller manufacturers during the dull period. In substantiation of this line of reasoning it was cited that the majority of the little plants, through lack of finances and knowledge of fundamental conditions, were unable to protect themselves and therefore always constituted a menace to the market structure.

While there is nothing novel in the proposed plan, there are indications that something along this line may be worked out in the present situation. The immense volume of natural gasoline now being made in the Mid-Continent Field and the tremendous investment in plants, etc., makes it imperative that some system be worked out. The characteristics of natural gasoline, its high volatility, and consequent great evaporation losses makes the problem of economically handling the surplus during periods of diminishing demand an extremely vexatious one.

Gasoline and Naphtha

The spot gasoline demand is showing very little change and it will take several days before the 1923 market shows much activity. None of the exporters is in the market at the present time and most of their Mid-Continent representatives state there is little likelihood of their purchasing any quantity of material before the middle of the month, if then. Apparently they prefer to wait and see how the domestic trade accepts the new prices. Two or three of the larger concerns are known to be in a position to handle a considerable volume of New Navy and high gravity gasoline over the next few months, but it is doubtful if they will be able to meet competition and pay present quotations.

Several of the larger refiners have expressed a willingness to buy gasoline from the smaller plants if they care to or are forced to sell below current quotations. So far very few of the little refiners have shown a disposition to take advantage of these offers, apparently feeling that if the big fellows can afford to demand higher prices than they can do so, also.

Naphtha quotations are much stronger than they were a week ago. Refiners discovered that if they expected to maintain straight run prices they would necessarily have to advance naphtha to its proper price relationship. Such a measure has had the added advantage of forcing blenders to ask more for their blended product.

Natural Gasoline and Blends

Natural gasoline is a little stronger in both price and demand than a week ago. Manufacturers feel that if straight run gasoline is commanding a better price, they are also entitled to more money for their product. They have been assisted somewhat by one of the temporary flurries which the natural gasoline market periodically experiences. Due to the mounting cost of naphtha and raw gasoline blenders are now asking and receiving about ¼ cent better prices than last week.

Burning Oils

There is practically no change in kerosene. A few refiners have advanced their quotations to 5 cents in keeping with gasoline prices, but the majority are still asking around 4¾ cents for Water White, with Prime White available at a lower figure. The exporters are understood to have a few inquiries for quantities of about 1,000,000 gallons, but the bulk of foreign demand is over for this season and refiners are not looking for much business from this source until summer.

Neutrals and Wax

Apparently the trade has become reconciled to the present lub prices and refiners report they are doing a nice volume of business. The demand is nothing out

(Continued on page 62)

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REFINERY AND CRUDE PRICES

Quotations on Principal Refined Products and Crude Petroleum Markets in All the American Oil Fields

GASOLINE AND NAPHTHA

CHICAGO DIST. (Based on Group 3)—	Jan. 2		Dec. 26		Dec. 19	
50-52 450 end point (Naphtha)	.09½	.10	.09¼	.09¾	.09¼	.09¾
56-58 450 end point	.10½	.10¾	.10¼		.10	.10¼
58-60 437 end point (New Navy)	.11½	.11¾	.10½	.11	.10½	.10¾
60-62 400 end point	.13½	.14	.13¼	.13½	.13¼	.13½
64-66 375 end point	.15¼	.15¾	.15	.15½	.15	.15½
68-70 360 end point	.17½	.18	.17¼	.17½	.17¼	.17½
OKLAHOMA (Group 3)—						
50-52 450 end point (Naphtha)	.09½	.09¾	.09½	.09¾	.09¼	.09½
56-58 450 end point	.10½	.10¾	.10	.10¼	.09¾	.10
56-58 437 end point (New Navy)	.11	.11¼	.10¼	.10½	.10	.10¼
58-60 437 end point (New Navy)	.11	.11½	.10¾	.11	.10¼	.10½
60-62 400 end point	.13¼	.13¾	.13	.13¼	.12¾	.13¼
64-66 375 end point	.15	.15½	.14¾	.15¼	.14¾	.15¼
68-70 350-365 end point	.17¼	.17½	.17½	.17¾	.17	.17¼
NORTH TEXAS—						
48-52 450 end point	.08	.08¾	.07¾	.08¼	.07¾	.08¼
50-52 440 end point (Naphtha)	.08½	.09¼	.08¼	.08¾	.08¼	.08¾
56-58 450 end point	.10	.10¾	.09¾	.10¼	.09¾	.10¼
58-60 437 end point (New Navy)	.10½	.11¼	.10¼	.10¾	.10½	.10¾
60-62 400 end point	.12¾	.13½	.12½	.13	.12½	.13
64-66 390 end point	.14½	.15¼	.14¼	.14¾	.14¼	.14¾
NORTH LOUISIANA-ARKANSAS—						
50-52 450 end point	.09½		.09½		.09½	
56-58 450 end point	.10½		.10½		.10¾	
58-60 437 end point (New Navy)	.11½		.11½		.11¼	
64-66 400 end point	.14		.14		.14	
64-66 375 end point	.15¼		.15		.15	
64-66 390 end point	.14½		.14½		.14½	
ROCKY MOUNTAIN STATES—						
58-60 437 end point (New Navy)	.14		.14		.14	
PENNSYLVANIA—						
52 Naphtha	.13½		.13½		.13½	
54 Naphtha	.14		.13¾		.13¾	
56 Gasoline	.14		.14¼		.14¼	
58 Gasoline	.14¾		.14½		.14¾	
60 Gasoline	.15¾		.15½		.16	
62 Gasoline	.16½		.16½		.17	
64 Gasoline	.18¼		.18½		.18½	
66 Gasoline	.22½		.22½		.22½	
68-70 Gasoline	.23		.23½		.23½	

NATURAL GASOLINE

CHICAGO DIST. (Based on Group 3)—	Jan. 2		Dec. 26		Dec. 19	
80-84 compression 330 end point	.11¼	.11¾	.12¼	.12½	.12½	.12¾
72-76 absorption 375 end point	.12	.12¼	.12½	.12¾	.12¼	.12½
OKLAHOMA (Group 3)—						
Grade A, 72-76, under 375 e.p., rec. 90%	.12	.12½	.11¾	.12¼	.12	.12½
Grade B, 76-80, 375 end point, rec. 88%	.11¾	.12¼	.11¾	.12¼	.12	.12½
Grade C, 80-84, 375 end point, rec. 85%	.11½	.11¾	.11½	.11¾	.11¾	.12
Grade D, 80-84, 330 end point, rec. 80%	.11	.11½	.11	.11½	.11¼	.11¾
Grade E, 84-87, 330 end point	.11	.11½	.11	.11½	.11¼	.11¾
Grade F, 87-90, 330 end point	.11	.11½	.11	.11½	.11¼	.11¾
NORTH TEXAS—						
80-84 compression	.12	.12¾	.11¾	.12¼	.11¾	.12¼
84-90 compression	.12	.12¾	.11¾	.12¼	.11¾	.12¼
72-76 absorption	.12¼	.13	.12	.12½	.12	.12½
76-82 absorption	.11¾	.12½	.11¾	.12¼	.11¾	.12¼
NORTH LOUISIANA-ARKANSAS—						
80-88 compression	.12		.12		.11½	.12

BURNING OILS

CHICAGO DIST. (Based on Group 3)—	Jan. 2		Dec. 26		Dec. 19	
41-43 water white Kerosene	.04¾	.05	.04⅝	.04¾	.04½	.04¾
42-43 water white Kerosene	.05	.05¼	.04¾	.05	.04¾	.05
OKLAHOMA (Group 3)—						
41-43 water white Kerosene	.04⅜	.04⅝	.04⅜	.04⅝	.04½	.04¾
42-43 water white Kerosene	.04⅝	.04⅞	.04⅝	.04⅞	.04¾	.05
44-46 Kerosene Distillate	.05¾	.06	.05¾	.06	.05¾	.06
45-47 Kerosene Distillate (500 end point)	.07	.07¼	.07	.07¼	.07	.07¼
46-48 Kerosene Distillate (480 end point)	.07⅞	.08	.07⅞	.08	.07⅞	.08
NORTH TEXAS—						
41-43 water white Kerosene	.04¼	.04¾	.04½	.05	.04½	.05
41-43 prime white Kerosene	.04	.04½	.04¼	.04¾	.04¼	.04¾
40-42 prime white Distillate	.03¾	.04¼	.04	.04½	.04	.04½
NORTH LOUISIANA-ARKANSAS—						
41-43 water white Kerosene (export)	.05		.05		.05¼	
ROCKY MOUNTAIN STATES—						
40-42 prime white Kerosene	.08		.08		.08	
PENNSYLVANIA—						
43 Kerosene	.07¼		.07¼		.07¾	
45 Kerosene	.07¾		.07¾		.08	
46 Kerosene	.08½		.09		.09¼	
47 Kerosene	.09¾		.10		.10¼	
36 Miners' Neutral	.07		.07		.07	

LONDON

	Jan. 2	Dec. 26	Dec. 19
Bunker Fuel Oil, delivered, ton (shillings)	.60	.60	.60

FUEL OILS

CHICAGO DIST. (Based on Group 3)—	Jan. 2		Dec. 26		Dec. 19	
24-26 Fuel Oil (sellers' cars, Group 3)	.95	1.00	.90	.95	.90	.95
22-24 Fuel Oil (El Dorado)	.75	.80	.70	.75	.75	.80
32-36 Gas Oil	.02¾	.03	.02⅝	.03	.02⅝	.02⅞
KANSAS (Group 3)—						
24-26 Fuel Oil	.95	1.00	.95	1.00	.95	1.00
32-36 Gas Oil	.02¾	.03	.02¾	.03	.02⅝	.02¾
OKLAHOMA (Group 3)—						
24-26 Fuel Oil (buyers' cars)	.80	.85	.80	.85	.80	.85
24-26 Fuel Oil (sellers' cars)	.90	.95	.90	.95	.90	.95
28-30 Fuel Oil (sellers' cars)	.95	1.00	.95	1.00	.95	1.00
32-36 Gas Oil	.02⅝	.02¾	.02⅝	.02¾	.02⅝	.02¾
38-40 Straw Distillate	.02¼	.03⅞	.03¼	.03¾	.03¼	.03¾
NORTH TEXAS—						
24-26 Fuel Oil	.85	.95	.85	.95	.85	.95
26-30 Fuel Oil	.90	1.00	.90	1.00	.90	1.00
32-36 Gas Oil	.02½	.02¾	.02¼	.02¾	.02½	.02¾
36-38 Gas Oil	.02½	.03	.02½	.03	.02½	.03
38-40 Straw Distillate	.02¾	.03¼	.02¾	.03¼	.02¾	.03¼
NORTH LOUISIANA-ARKANSAS—						
24-26 Fuel Oil	.85	.90	.90		.90	.95
32-36 Gas Oil	.03		.03		.02¾	.03
GULF COAST (SOUTH TEXAS)—						
Gas Oil	.04	.04½	.04	.04½	.04	.04½
Gulf Coast Fuel	1.25	1.40	1.30	1.40	1.30	1.40
PENNSYLVANIA—						
30-34 Fuel Oil	.05¾		.05½		.05¼	
34 Neutral	.07¼		.07¼		.07¼	

NEUTRAL OILS

OKLAHOMA (Group 3)—	Jan. 2		Dec. 26		Dec. 19	
Pale Neutrals:						
70-80 vis., 2½ color, 20-25 cold test	.05	.05½	.05	.05½	.05	.05½
100 vis., 2 color, 20-25 cold test	.06¼	.06½	.06¼	.06½	.06¼	.06½
100 vis., 3 color, 20-25 cold test	.05¾	.06	.05¾	.06	.05¾	.06
150 vis., 3 color, 20-25 cold test	.09½	.10	.09½	.10	.09½	.10
150 vis., 4 color, 20-25 cold test	.09¼	.09¾	.09¼	.09¾	.09¼	.09¾
180 vis., 4 color, 23-28 cold test	.10¾	.11¼	.10¾	.11¼	.10¾	.11¼
180 vis., 3 color, 23-28 cold test	.11½	.12	.11½	.12	.11½	.12
200 vis., 3 color, 23-28 cold test	.12–	.12½	.12	.12½	.12	.12½
200 vis., 4 color, 23-28 cold test	.10¾	.11¼	.10¾	.11¼	.10¾	.11¼
220 vis., 3 color, 25-30 cold test	.13	.13½	.13	.13½	.13	.13½
220 vis., 4 color, 25-30 cold test	.12¼	.12¾	.12¼	.12¾	.12¼	.12¾
240 vis., 4 color, 25-30 cold test	.13¼	.13¾	.13¼	.13¾	.13¼	.13¾
280 vis., 3 color, 25-30 cold test	.16½	.17	.16½	.17	.16½	.17
280 vis., 4 color, 25-30 cold test	.15½	.16	.15½	.16	.15½	.16
300 vis., 3 color, 25-30 cold test	.17½	.18	.17½	.18	.17½	.18
Red Neutrals:						
180 vis., 5 color, 23-28 cold test	.10	.10½	.10	.10½	.10	.10½
180 vis., 6 color, 23-28 cold test	.09	.09¾	.09	.09¾	.09	.09¾
200 vis., 5 color, 23-28 cold test	.10½	.11	.10½	.11	.10½	.11
200 vis., 6 color, 23-28 cold test	.09¾	.10¼	.09¾	.10¼	.09¾	.10¼
220 vis., 5 color, 25-30 cold test	.11½	.12	.11½	.12	.11½	.12
220 vis., 6 color, 25-30 cold test	.10¾	.11	.10¾	.11	.10¾	.11
240 vis., 5 color, 25-30 cold test	.12½	.13	.12½	.13	.12½	.13
240 vis., 6 color, 25-30 cold test	.11¾	.12¼	.11¾	.12¼	.11¾	.12¼
280 vis., 5 color, 25-30 cold test	.14½	.15	.14½	.15	.14½	.15
280 vis., 6 color, 25-30 cold test	.13½	.14	.13½	.14	.13½	.14
300 vis., 5 color, 25-30 cold test	.17	.17½	.17	.17½	.17	.17½
150-160 vis., 1 color, 40-50 cold test	.06½	.07¼	.06½	.07¼	.06½	.07¼
190-200 dark green, 40-50 cold test	.05½	.06	.05½	.06	.05½	.06
600 steam refined	.16½	.17½	.16½	.17½	.16½	.17½
590-600 Bright Stock	.26	.28	.26	.28	.26	.28
Waxes:						
124-126 White Crude Scale Wax	.03⅛	.02¼	.02⅛	.02¼	.02⅛	.02¼
PENNSYLVANIA—						
150, 3 color	.17¾		.17¾		.17¾	
180, 3 color	.21		.21		.21	
200, 3 color	.23		.23		.23	
220, 3 color	.26		.26		.26	
600, steam refined	.09¾		.10		.10	
635, steam refined	.21½		.21½		.21½	
650, steam refined	.13½		.13½		.13¼	
600, Pennsylvania flash	.17		.17		.16½	
630, Pennsylvania flash	.22		.22		.22	
*550, E filtered	.14¾		.14¾		.14½	
*600, E filtered	.17¾		.17¾		.17½	
600, E filtered	.14¼		.14		.14	
600, D filtered	.22		.22		.22	
550, E filtered	.13		.13		.13	
550, D filtered	.18		.18		.18	
Pennsylvania Bright Stock	.33		.33½		.33½	
†122-124 White Crude Scale Wax	.02¾		.02¾		.02¾	
†124-126 White Crude Scale Wax	.02⅞		.02⅞		.02⅞	

*At Warren, Ohio. †At New York City.

REFINERY AND CRUDE PRICES

Quotations on Principal Refined Products and Crude Petroleum Markets in All the American Oil Fields

GULF COAST (SOUTH TEXAS)—	Jan. 2		Dec. 26		Dec. 19	
Lubricating Stocks:						
Zero Black	.05½	.06	.05½	.06	.05½	.06
No. 2 color, 100 vis., pale oil	.06½	.07	.06	.06½	.06	.06½
No. 2½ color, 150 vis., pale oil	.08½	.09	.08½	.09	.08½	.09
No. 3 color, 200 vis., pale oil	.11½	.12	.11	.12	.11	.12
No. 3½ color, 300 vis., pale oil	.15	.16	.15	.16	.15	.16
No. 3¾ color, 500 vis., pale oil	.18	.18½	.18	.18½	.18	.18½
No. 4 color, 750 vis., pale oil	.26	.27½	.26	.27	.26	.27
No. 1½ color, 100 vis., pale, filtered	.10	.11	.10	.11	.10	.11
No. 1½ color, 150 vis., pale, filtered	.12	.13	.12	.13	.12	.13
No. 2 color, 200 vis., pale, filtered	.16	.17	.16	.17	.16	.17
No. 2 color, 300 vis., pale, filtered	.18	.19	.18	.19	.18	.19
No. 2½ color, 500 vis. pale filtered	.22	.23	.22	.23	.22	.23
No. 2½ color, 750 vis., pale, filtered	.32	.33	.32	.33	.32	.33
No. 5 color, 200 vis., red oil	.09	.09½	.09	.09½	.09	.09½
No. 5 color, 300 vis., red oil	.12	.12½	.12	.12½	.12	.12½
No. 6 color, 500 vis., red oil	.15	.16	.15	.16	.15	.16
No. 5 color, 750 vis., red oil	.24	.25	.26½	.28	.26½	.28

MOTOR NATURAL GASOLINE (BLENDS)

CHICAGO DIST. (Based on Group 3)—	Jan. 2		Dec. 26		Dec. 19	
60-62 450 end point	.10	.10½	.10	.10½	.10	.10½
64-66 450 end point	.10¼	.10¾	.10¼	.10¾	.10¼	.10¾
OKLAHOMA (Group 3)—						
68-70 430-435 end point	.10½	.10¾	.10¼	.10½	.10¼	.10½
64-66 450 end point	.10¼	.10½	.10	.10¼	.10	.10¼
60-62 450 end point	.10	.10¼	.09¾	.10	.09¾	.10
NORTH TEXAS—						
58-62 440 end point	.10	.10¾	.09¾	.10¼	.09¾	.10¼
58-62 450 end point	.09¾	.10½	.09¾	.10¼	.09½	.10
PENNSYLVANIA—						
*60-62	.14½		.14½		.14½	
*64-66	.14½		.14½		.14½	
*66-68	.14¾		.14¾		.14¾	
*68-70	.14¾		.14¾		.14¾	

*At Sistersville, W. Va.

NEW YORK DOMESTIC MARKET

Motor Gasoline:	Jan. 2	Dec. 26	Dec. 19
Greater New York, in steel barrels	.22	.22	.22
New York State (outside Greater New York and New England, tank wagon	.22	.22	.22 .23
Bulk, delivered at New York	.16	.16	.16
New Jersey, tank wagon	.21½	.21½	.21½
V.M.P. Naphtha, in steel barrel	.23	.23	.23
Kerosene:			
Greater New York, tank wagon	.15	.15	.15
New York State (outside Greater New York and New England, tank wagon	.15	.15	.15
Bulk, delivered at New York	.10	.10	.11
New Jersey, tank wagon	.14	.14	.14
Lubricating Oil (industrial) at refinery, Bayonne, N. J.:			
Cylinder, light filtered, in barrels	.37	.37	.37
Cylinder, dark filtered, in barrels	.32	.32	.32
Cylinder Bright Stock	.45	.45	.45
Cylinder, steam refined (600)	.21½	.21½	.21½
Black, in bulk	.10	.10	.10
Bloomless, white, 30-31 gravity, 170 vis.	.43	.43	.43
Bloomless, 885 specific gravity	.18	.18	.18
Red Paraffin:			
170 viscosity	.19	.19	.19
212 viscosity	.21	.21	.21
265 viscosity	.23	.23	.23
295 viscosity	.26	.26	.26
Paraffin, 903 specific gravity	.24	.24	.24
Spindle, 200 vis. at 100	.26	.26	.26
Lubricating Oil (motor), discount to dealers:			
Cylinder, in barrels	1.00	1.00	1.00
Steam tractors, in barrels	1.00	1.00	1.00
Transmission and differential, in barrels	.09½	.09½	.09½
Motor Grease, in barrels, pound	.13	.13	.13
*Fuel Oil:			
Bunker Oil, 14 plus, delivered in barges, bbl.	1.45	1.45	1.45
Bunker Oil, 26 plus, at refinery, gallon	.04¼	.04¼	.04¼
Gas Oil, delivered in New York	.05	.05	.05
Wax, fully refined:			
120-122 a.m.p.	.03	.03	.03
125-127 a.m.p.	.03¼	.03¼	.03¼
130-132 a.m.p.	.03¾	.03¾	.03¾
135-137 a.m.p.	.05	.05	.05

*Lighterage, 6.5c a barrel extra.

NEW YORK EXPORT PRICES

	Jan. 2	Dec. 26	Dec. 19
Motor Gasoline, in cases, gallon	.28¾	.28¾	.28¾
Motor Gasoline, U. S. Navy, spec., gallon	.15½	.15½	.15½
Naphtha, 60° F., 59-61 spec. grav.	.18	.18	.18
Naphtha, 60° F., 63-66 spec. grav.	.21	.21	.21
Naphtha, 60° F., 66-68 spec. grav.	.22	.22	.22
Kerosene:			
Standard white, in bulk, gallon	.07	.07	.07
Standard white, in barrels, gallon	.13¼	.13¼	.13¼
Standard white, in cases, gallon	.16	.16	.16½
Water white, in bulk, gallon	.08	.08	.08
Water white in barrels, gallon	.14¼	.14¼	.14¼
Water white, in cases, gallon	.17½	.17½	.17½

MEXICAN CRUDE OIL

Mexican Ports, f.o.b. terminals (based on contracts):	Jan. 2	Dec. 26	Dec. 19
*Tuxpam Crude Oil, barrel	1.35	1.35	1.35
†Panuco Crude Oil, barrel	.90	.90	.90

*Plus 20.33c tax. †Plus 11.21c tax.

Tuxpam Crude Oil, barrel	1.85	1.90	1.90
Panuco Crude Oil, barrel	1.30	1.35	1.35

*Based on cost.

CRUDE OIL PRICES

Dec. 11.—Standard Oil Co. of Louisiana reduced Smackover crude to 30 cents.

Dec. 14.—Texas Co. advanced Mexia and Currie (Tex.) crudes 10 cents; advanced De Soto (La.) crude 35 cents. Bull Bayou crude from $1.15 to $1.40 and Crichton crude from $1 to $1.25.

Dec. 15.—Magnolia Petroleum Co. advanced Mexia crude 10 cents.

Dec. 16.—Sinclair Crude Oil Purchasing Co. meets price of Magnolia Petroleum Co. for Healdton (Okla.) crude.

Dec. 16.—Standard Oil Co. of Louisiana advanced De Soto crude 35 cents. Crichton crude 25 cents, and posted following prices for Bull Bayou crude: 38° and above, $1.35; 35° tto 37.9°, $1.30; 32° to 34.9°, $1.25.

Dec. 22.—Midwest Refining Advanced Salt Creek (Wyo.) crude 35 cents and Cat Creek (Mont.) crude 30 cents.

Dec. 23.—Ohio Oil Co. advanced Grass Creek, Elk Basin, Lance Creek and Mule Creek crudes 30 cents; Big Muddy and Rock Creek crudes 35 cents.

Dec. 28.—Texas Co. advanced Mexia and Currie (Tex.) crudes 20 cents. Humble Oil and Refining Co. advanced to same quotations.

Dec. 29.—Magnolia Petroleum Co. met Texas Co. prices for Mexia and Currie (Tex.) crudes.

Dec. 30.—Seep Purchasing Agency advanced Pennsylvania, Cabell and somerset crudes 25 cents.

Jan. 3.—Standard Oil Co. of Louisiana posted following prices for Smackover (La.) crude: 26° and above, 75 cents; below 26°, 30 cents.

Oklahoma and Kansas

Below 28°	$ .90
28° to 29.9°	1.00
30° to 32.9°	1.10
33° to 34.9°	1.25
35° to 36.9°	1.40
37° to 38.9°	1.80
39° and above	1.80

Magnolia Petroleum Co.

Below 28°	$ .65
28° to 30.9°	.75
31° to 32.9°	1.10

Sinclair Crude Oil Purchasing Co. adopted the Magnolia graded scale of prices for Healdton crude. The Texas Co. continued to post 75 cents flat for all Healdton crude it runs.

Northern Louisiana

Homer, Caddo, Haynesville, and El Dorado Fields:	
Below 30°	$ .75
30° to 32.9°	1.10
33° to 34.9°	1.25
35° to 36.9°	1.40
37° to 38.9°	1.60
39° and above	1.80
Bull Bayou, 38° and above	1.35
Bull Bayou, 35° to 37.9°	1.30
Bull Bayou, 32° to 34.9°	1.25
Crichton crude	1.25
De Soto crude	1.60
Bellevue	.75
Smackover, 26° and above	.75
Smackover, below 26°	.30

Wyoming and Montana

Rock Creek (Wyo.)	$1.15
Salt Creek	1.05
Big Muddy	1.05
Mule Creek	.90
Grass Creek	1.50
Elk Basin	1.55
Lance Creek	1.50
Osage	1.20
Cat Creek (Mont.)	1.50
Kevin-Sunburst (Mont.)	.70
Greybull and Torchlight	1.20
Ferris	.90
Hamilton Dome	.70
*Lander	.70

*Contract price which covers entire production of field.

North Texas and Panhandle

Moran, Thrall, Burkburnett, Rising Sun, Stephens County, Strawn, Ranger, Desdemona, Pioneer and Young County.

Below 28°	$ .90
28° to 29.9°	1.00
30° to 32.9°	1.10
33° to 34.9°	1.25
35° to 36.9°	1.40
37° to 38.9°	1.60
39° and above	1.80
Corsicana, light	1.00
Corsicana, heavy	.65
Mexia	1.55
Currie	1.80

Gulf Coast

Sour Lake	$1.25
Humble	1.25
Markham	1.25
Goose Creek	1.25
Vinton	1.25
West Columbia	1.25
Orange	1.25
Jennings	1.25
Spindletop	1.25
Pierce Junction "A"	1.25
Pierce Junction "B"	.80
Hull "A"	1.25
Hull "B"	.80

California Quotations

14° to and including 19.9°	$ .60
20° to and including 30.9°	.63
21° to and including 21.9°	.67
22° to and including 22.9°	.73
23° to and including 23.9°	.80
24° to and including 24.9°	.88
25° to and including 25.9°	.96
26° to and including 26.9°	1.05

For each full degree above 26° to and including 34.9°, 10 cents additional will be paid.

35° and above	$1.95

Eastern States

Pennsylvania	$3.25
Cabell	2.11
Corning	1.75
Lima	1.98
Wooster	1.90
Ragland	1.00
Illinois	1.77
Indiana	1.78
Princeton	1.77
*Petrolia, Canada	2.35
Plymouth	1.15
†Somerset	1.90
†Somerset, above 28°	2.12
Western Kentucky	1.65
Waterloo	1.25
*Oil Springs, Canada	2.45

*Plus Government bounty of 52½c.
†Somerset oil produced after October 1, 6 cents above posted price.

TANK WAGON MARKETS

Tank wagon quotation for gasoline and kerosene in the United States, as furnished by the larger marketing concerns, Jan. 2

STANDARD OIL CO. (INDIANA)

Main Service Station Price

	Gasoline Tank wagon	Gasoline Service station	Oil Tank wagon
Chicago district	18.0	20.0	11.5
Decatur, Ill.	18.8	20.8	12.0
Joliet	18.0	20.0	12.3
Peoria	18.8	20.8	12.0
Quincy	18.6	20.6	11.7
Davenport, Iowa	19.1	21.1	12.4
Des Moines	19.1	21.1	12.4
Keokuk	19.1	21.1	12.4
Sioux City	18.7	20.7	12.0
Duluth, Minn	19.8	21.8	13.1
Minneapolis	19.5	21.5	13.1
La Crosse, Wis.	19.8	21.8	12.9
Milwaukee	18.6	20.6	11.7
Madison	18.9	20.9	12.0
Detroit, Mich.	19.4	21.4	12.7
Grand Rapids	19.3	21.3	12.6
Saginaw	19.5	21.5	12.8
Evansville, Ind.	18.6	20.6	12.0
Fort Wayne	19.0	21.0	12.4
Indianapolis	18.8	20.8	12.2
South Bend	19.0	21.0	12.4
Fargo, N. D.	22.8	24.8	15.0
Huron, S. D.	21.6	23.6	13.6
Sioux Falls	21.1	23.1	13.1
Kansas City, Mo.	17.5	19.5	10.8
Springfield	18.4	20.4	11.7
St. Louis	18.5	20.5	11.5
St. Joseph	18.9	20.9	11.7
Wichita, Kans.	18.4	20.4	11.3

SOUTHWESTERN DISTRICT

Magnolia Petroleum Co.

	Gasoline Tank wagon	Gasoline Service station	Oil Tank wagon
Dallas, Tex.	16.0	19.0	11.0
Fort Worth	12.0	15.0	11.0
Houston	16.0	19.0	11.0
Galveston	16.0	19.0	11.0
San Antonio	15.0	18.0	10.0
Amarillo	16.0	19.0	11.0
El Paso	16.0	19.0	11.0
Com. Tex. points	16.0	19.0	11.0
Diff. Terr. Tex.	17.0	20.0	12.0
Muskogee, Okla.	16.0	19.0	10.0
Oklahoma City	15.0	18.0	10.0
Tulsa	16.0	19.0	10.0
Fort Smith, Ark.	18.0	21.0	12.0
Little Rock	17.0	19.0	14.0
Pine Bluff	18.0	21.0	13.0
Texarkana	18.0	21.0	13.0

SOUTHWESTERN TERRITORY

Standard Oil Co. (Kentucky)

	Gasoline Tank wagon	Gasoline Service station	Oil Tank wagon
Atlanta, Ga.	19.0	21.0	16.0
Augusta	19.0	21.0	16.0
Macon	19.0	21.0	16.0
Savannah	18.0	20.0	14.0
Birmingham, Ala.	17.0	19.0	15.0
Mobile	16.0	18.0	14.5
Montgomery	17.0	19.0	16.0
Clarksdale, Miss.	17.5	19.5	14.0
Jackson	17.5	19.5	12.5
Natchez	17.0	19.0	13.5
Vicksburg	17.0	19.0	13.5
Jacksonville, Fla.	17.0	19.0	14.0
Miami	20.0	22.0	16.5
Pensacola	17.0	19.0	14.5
Tampa	17.0	19.0	14.5
Covington, Ky.	19.0	21.0	14.0
Lexington	20.0	22.0	14.0
Louisville	19.0	21.0	13.0

Prices in Kentucky, Mississippi and Georgia include 1c road tax.

CHICAGO TANK WAGON

(Chicago Territory)

Gasoline	18.0
Kerosene	11.5

Tank wagon prices on Jan. 25, 1921, down 2c on g., 3c on k.; Feb. 1, both down 2c; April 26, both down 3c; July 25, g. down 2c; Oct. 15, g. up 1c; Oct. 23, k. up 1c; Nov. 9, g. up 1¼c; k, 1c; April 10, 1922, g. up 1½c; May 8, g. up 1c; June 27, both up 1c; July 19, g. down 2c; k. down 1c; Oct. 10, g. down 2c; Oct. 31, g. down 1c.

ATLANTIC TERRITORY

Atlantic Refining Co.

	Gasoline Tank wagon	Gasoline Service station	Oil Tank wagon
Pittsburgh, Pa.	21.0	24.0	14.0
Philadelphia	21.0	24.0	14.0
Dover, Del.	21.0	24.0	14.0
Wilmington	21.0	24.0	14.0
Providence, R. I.	22.0	25.0	15.0
Springfield, Mass.	22.0	24.0	15.0
Worcester	22.0	25.0	15.0
Hartford, Conn.	22.0	25.0	15.0
New Haven	22.0	24.0	15.0
Boston	22.0	24.0	15.0

ATLANTIC COAST ZONE

Standard Oil Co. (New Jersey)

	Gasoline Tank wagon	Gasoline Service station	Oil Tank wagon
Atlantic City, N. J.	21.5	23.5	14.0
Newark	21.0	23.0	14.0
Annapolis, Md.	22.5	24.5	14.0
Baltimore	21.5	23.5	13.0
Cumberland	23.0	25.0	15.0
Washington, D. C.	21.0	23.0	13.5
Norfolk, Va.	19.5	21.5	13.0
Petersburg	22.0	24.0	14.5
Danville	20.5	22.5	15.0
Richmond	22.0	24.0	13.5
Roanoke	22.0	24.0	15.0
Charleston, W. Va.	20.5	22.5	13.5
Keyser	22.0	24.0	15.0
Parkersburg	20.0	22.0	12.0
Wheeling	20.0	22.0	13.5
Charlotte, N. C.	19.0	21.0	14.5
Hickory	19.5	21.5	15.0
Mt. Airy	19.5	21.5	15.0
Salisbury	19.5	21.5	15.0
Charleston, S. C.	18.0	20.0	12.0
Columbia	20.0	22.0	14.0

NEW ENGLAND REGION

Standard Oil Co., (New York)

	Gasoline Tank wagon	Gasoline Service station	Oil Tank wagon
Albany, N. Y.	22.0	25.0	15.0
*New York	22.0	25.0	15.0
Buffalo	22.0	25.0	15.0
Providence, R. I.	22.0	25.0	15.0
Augusta, Me.	22.0	25.0	15.0
Manchester, N. H.	22.0	25.0	15.0
Burlington, Vt.	22.0	25.0	15.5

*Price in steel bbls.

ROCKY MOUNTAIN REGION

Continental Oil Co.

	Gasoline Tank wagon	Gasoline Service station	Oil Tank wagon
Denver, Colo.	18.0	20.0	13.5
Glenwood Springs	23.0	...	18.5
Pueblo	18.0	20.0	13.5
Basin, Wyo.	17.0	...	14.0
Casper	14.5	16.5	12.0
Cody	19.0	...	16.0
Cheyenne	17.0	19.0	13.5
Lander	17.0	...	14.5
Billings, Mont.	20.0	22.0	15.5
Butte	21.5	23.5	16.0
Great Falls	21.5	23.5	17.0
Helena	21.5	23.5	19.0
Miles City	21.0	23.0	16.5
Ogden, Utah	21.5	22.5	16.5
Salt Lake City	20.5	22.5	16.5
Boise, Idaho	22.0	24.0	19.0
Albuquerque, N. M.	23.0	25.0	17.5

PACIFIC COAST TERRITORY

Standard Oil Co. (California)

	Gasoline Tank wagon	Gasoline Service station	Oil Tank wagon
San Francisco, Calif.	19.0	22.0	15.5
Los Angeles	19.0	22.0	15.5
Fresno	19.5	22.5	17.5
Reno, Nev.	22.5	25.5	19.0
Portland, Ore.	22.0	25.0	16.5
Seattle, Wash.	21.0	24.0	16.5
Spokane	24.5	27.5	20.5
Tacoma	21.0	24.0	16.5
Phoenix, Ariz.	22.5	25.5	21.5

BUCKEYE DISTRICT

	Gasoline Tank wagon	Gasoline Service station	Oil Tank wagon
All Ohio points	19.0	21.0	13.0

NEBRASKA POINTS

	Gasoline Tank wagon	Gasoline Service station	Oil Tank wagon
Omaha	18¼	20¼	12¼
Crawford, Neb	19½	....	13¾

CENTRAL SOUTH DISTRICT

Standard Oil Co. (Louisiana)

	Gasoline Tank wagon	Gasoline Service station	Oil Tank wagon
New Orleans, La	16.0	18.0	13.0
Alexandria	17.0	19.0	14.0
Baton Rouge	15.5	17.5	12.5
Lake Charles	17.0	18.0	14.0
Shreveport	15.0	17.0	12.0
Memphis, Tenn	15.5	17.5	15.0
Chattanooga	15.5	18.0	15.5
Knoxville	17.0	19.0	16.0
Nashville	16.0	17.5	15.5
Little Rock, Ark	17.0	19.0	14.0
Camden	17.0	19.0	14.0

STATE LAWS AND REGULATIONS

Gasoline Sales Tax for Roads

Arkansas, Colorado, Connecticut, Florida, Georgia, Kentucky, Louisiana, Montana, Maryland, New Mexico, North Carolina, Pennsylvania, South Dakota, Mississippi and Washington, 1 cent a gallon.

Oregon and South Carolina collect 2 cents a gallon.

State Inspection Tax

Alabama—One-twentieth of 1 cent a gallon on motor fuel; ½ cent a gallon refined oil inspection.

Arkansas and South Carolina—One-eighth of a cent a gallon on gasoline and kerosene.

Florida—One-thirteenth of a cent a gallon on both gasoline and refined oils.

Kansas—One cent a barrel on gasoline and kerosene.

Georgia—One-half cent a gallon both refined oil and gasoline inspection.

Louisiana—One-eighth of a cent inspection tax per gallon on both gasoline and kerosene.

Kentucky—One-fifth of a cent a gallon on refined oil and gasoline inspection.

Minnesota, South Dakota and Wisconsin—Five cents a barrel on refined oils.

Missouri—Sales tax is 1½ cents per barrel.

Nebraska—Twenty-five cents a barrel from 1 to 5 barrels, and 6 cents a barrel on 6 barrels or more.

MUCH ACTIVITY BEING SHOWN BY REFINERS IN NEW ORLEANS DISTRICT

By W. H. Reed

New Orleans, La., Jan. 1.—Work of enlarging the plants of the New Orleans Refining Co., the Chalmette Oil Corporation and the Liberty Oil Co. will be started early in 1923, according to announcements of sales managers of these companies.

Considerable interest has been taken in the activities of the New Orleans Refining Co., a Royal Rutch-Shell company which has broken into the domestic market and obtained a good volume of business this year. As a matter of fact, this company on account of scarcity of Mexican crude and export orders has not gone after the domestic business as it would, had conditions been otherwise.

C. L. Nicholson, in charge of sales for the New Orleans Refining Co., has returned to the city after a visit to London, it is said. Mr. Nicholson said yesterday his company is preparing to enlarge its plant above New Orleans which is taken to mean the New Orleans Refining Co. will go after more jobbing business and handle more export oil.

The Chalmette Co., which is affiliated with the Louisiana Oil Refining Corporation of Shreveport, and Invincible interests, will build a 2,500-bbl. plant at Chalmette, according to M. E. Sellers, sales manager. At present, the Chalmette has a 400-bbl. refinery below New Orleans. The output of this plant, however, is small compared to the total volume of oil handled by the Chalmette.

T. C. Anderson, president of the Liberty Oil Co., has inspected several cracking processes in Texas and Mid-Continent fields recently. Mr. Anderson told the writer this week his company would install a cracking plant, but had not definitely decided upon the type. The Liberty has a 1,200-bbl. refinery within the city limits of New Orleans. It is one of the fastest growing companies in this section, enjoying a large retail gasoline and motor oil trade, as well as a big business in gasoline and kerosene in cases and refined products in tank car lots.

Jobbers are keenly interested in the present situation which is interpreted by some of them to mean they will have a struggle to get by in 1923. At present market prices, gasoline costs 13½ cents delivered New Orleans, freight, tax and inspection paid. The tank wagon market is 16 cents, which leaves the jobbers a narrow margin for doing business.

The New Orleans situation is not necessarily local, either. It has been reported the past two weeks that gasoline and kerosene declined in the Mid-Continent fields. That may be true, but it has had no effect on the New Orleans market. Kerosene costs 7 to 7½ cents delivered today for domestic use. Revision of freight rates is something all jobbers are looking forward to. Most of the trade is unable to figure how a railroad can make identically the same shipment from Mid-Continent points to New Orleans for 24½ cents "for export" when the same haul may be as high as 46 cents "for domestic use."

Jobbers who are handling gasoline and kerosene for export in cases are able to purchase considerable quantities of Mid-Continent products, but that field is no market as far as they are concerned for domestic requirements. As a matter of fact, most of the refined products handled by New Orleans jobbers are refined by refineries along the river, although a good volume of gasoline and kerosene moves into New Orleans from Shreveport refineries.

Prices quoted today are as follows: 150 w. w. cases, 2-5, $1.60; 150 w. w. cases 10-1, $3.20; 150 w. w. wood bbls., 14½c; 150 w. w. iron bbls. 12c; 58-60 gr. gasoline, cases, 2-5, $2.35; 58-60 gr. gasoline, iron bbls., 16c.

Shipments this week were as follows:

Imports

1,894 tons Venezuelan fuel oil from Curcas D. W. I. to order; 35,000 bbls. crude, from Tampico to order; 15,000 bbls. crude from Tampico to Huasteca Petroleum Corporation.

Exports

3,000,000 gallons gasoline to London, England; 1,243,000 gallons gas oil to Brest, France; 4,620,000 gallons crude to Charleston, S. C.; 2,225,000 gallons of naphtha and 2,750,000 gallons refined petroleum to Avonmouth, England.

TANK WAGON CHANGES

Effective December 27, the Continental Oil Co. reduced gasoline ½ cent at Albuquerque, N. M.

Effective December 28, Magnolia Petroleum Co. reduced tank wagon prices of gasoline to 16 cents and kerosene 11 cents in Texas, except at points where the same or lower quotations were already in effect.

DEPENDABLE!

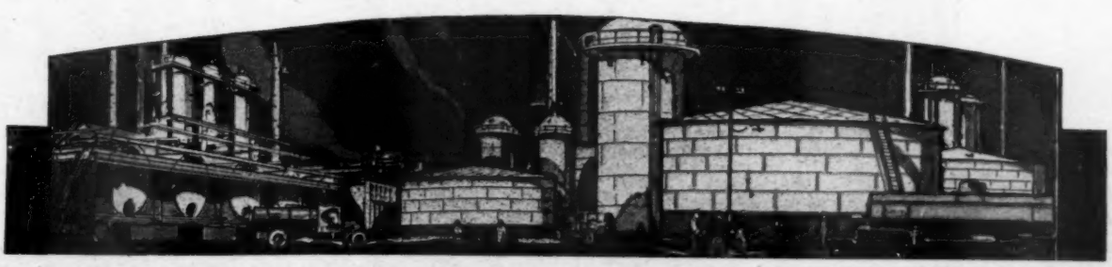
Storage Tanks
Stills
Condenser Boxes
Towers
Agitators
Horizontal Tanks
Rundown Tanks
Stacks

Kaw built steel refinery equipment, in extensive use throughout the Mid-Continent Field, has won a reputation for dependability. This good reputation is justly earned through accuracy of design and permanence of construction.

Kaw is equipped to furnish dependable refinery equipment according to your specifications.

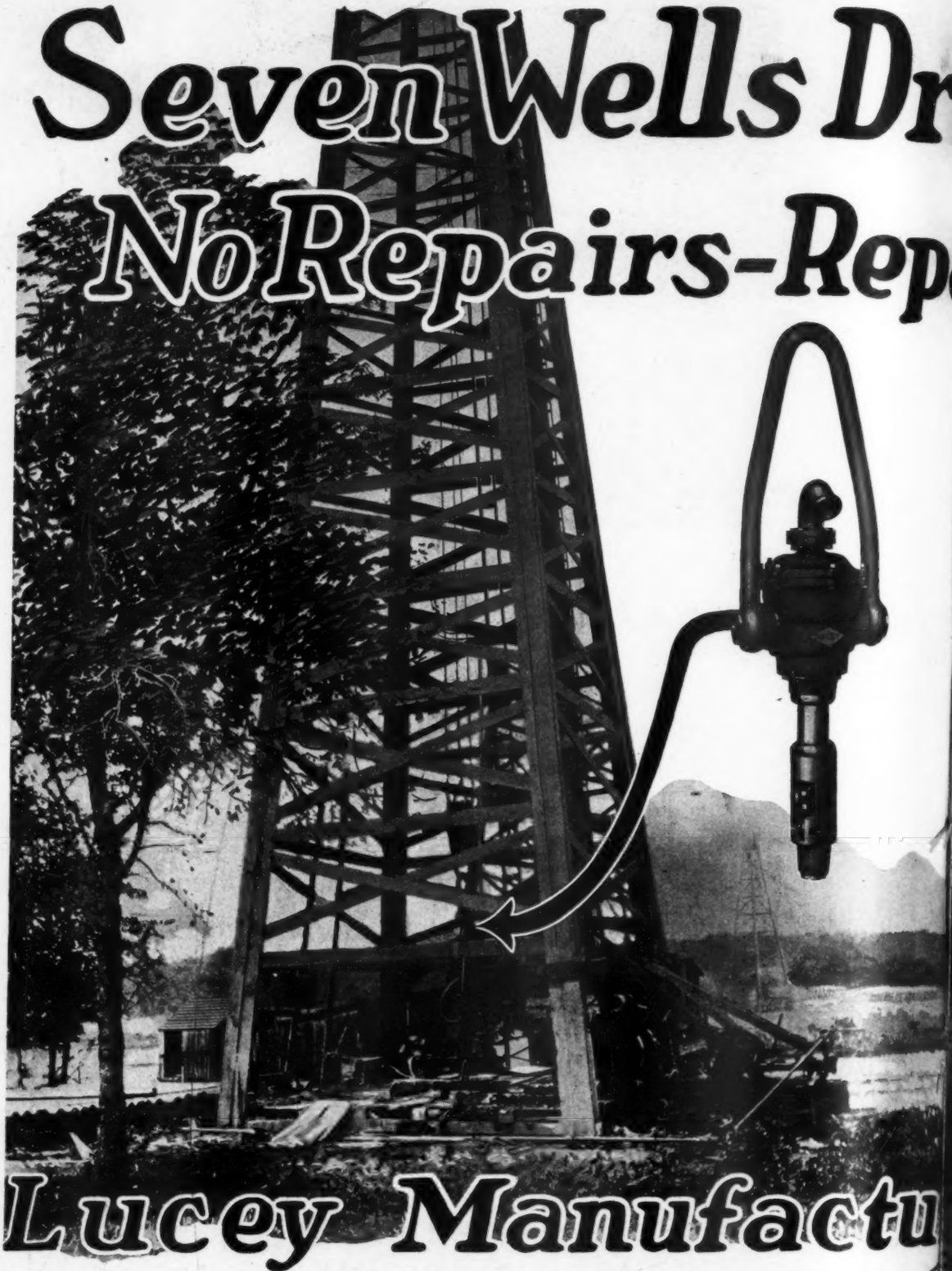
KAW BOILER WORKS COMPANY

Offices— Waldheim Bldg. KANSAS CITY, MO. *Plant*— First and Walker Ave., Kansas City, Kans.



Seven Wells Dri

No Repairs-Repa



Lucey Manufactu

NEW YORK PITTSBURGH LOS ANGELES WHEREVER

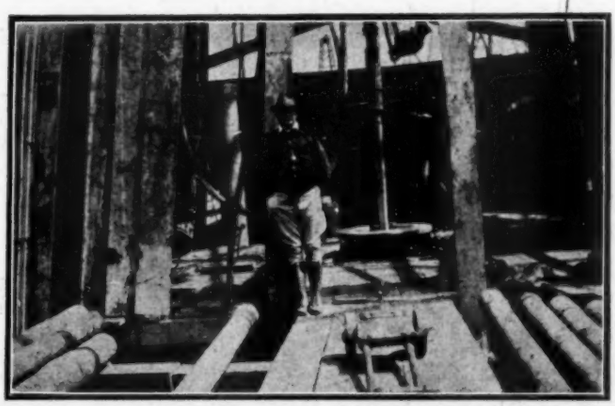
BRANCHES IN: Houston, Fort Worth, Casper, Beaumont, Tulsa, San Francisco, Shreveport.
PLANTS: Chattanooga, Tenn.—Houston, Texas.

rilled 12,162 feet—
packed joints only twice

THAT'S the service the LUCEY Improved Swivel gave J. H. Hudson, contractor in the Hewitt field, Oklahoma, who drilled seven wells with this swivel. Mr. Hudson expresses his satisfaction in these words: "It gives better service than any swivel I ever used, and I have used every swivel on the market."

So freely does the swivel rotate, even when suspending several tons of drill pipe, that Mr. Hudson found snubbing down or anchoring the swivel was only necessary when starting in extremely cold weather.

When it is realized that the LUCEY Improved Swivel shown in Mr. Hudson's rig has drilled seven holes and, with only a few minor renewals, will continue to give the same satisfying service on many more wells, it brings home the results that a discriminating operator can get by first choosing the right equipment; and second, by the right use of it.



uring Corporation.

THERE'S OIL

DISTRICT AGENTS:
Rex Machinery & Supply Co.,—Tulsa-Ardmore. North Texas Supply Co.,—Fort Worth-Graham-Breckenridge. General Supply Co.,—Casper, Wyoming.

More Optimism Regarding Oil Securities

Belief Petroleum Industry is Preparing for Record Consumption This Year Creates Better Feeling Among Financiers.

By N. O. Fanning
Room 734, No 30 Church St., New York

New York, Jan. 1.—While oil stocks were somewhat irregular during the past week, the low-priced Standard Oils registered some substantial advances, and closed the week materially higher than at the close of the previous week. Vacuum Oil, Standard Oil of New York and Standard Oil of Indiana developed strength and were unusually active. This applies to the "new" 25 par stocks.

The general feeling in the Street seems to be considerably brighter than before the holidays, and in some quarters an advance in crude oil prices early this year is looked for, one which will include every field. The refining industry must begin to prepare in earnest for the gasoline demand during the coming spring, summer and fall, and this, it is believed, will result in heavier takings of high-grade crude from the Mid-Continent, Eastern and Wyoming fields.

It is felt that the petroleum industry is now preparing for a record consumption of petroleum products during 1923. While refining facilities and the present production of crude are ample, transportation facilities are lacking and several big oil companies are rushing through their pipe-line construction, which will bring larger supplies of crude to the refining centers, especially from the Rocky Mountain Field.

Meanwhile, special developments in the affairs of certain prominent oil companies are drawing the attention of the Street. With the recapitalization of the Standard Oil companies about completed, those who keep in touch with oil finance are directing their gaze toward the independent group to a larger degree.

Doheny Issues in Limelight

As a result of the radical changes in the Mexican situation during the past six months, the Street is speculating as to the future of the Doheny oil companies, which have been continuously in the limelight due to the gyrations in Mexican Petroleum common, which reached a record high price of $322 per share recently. Mexican Petroleum Co. is still strongly intrenched in Mexico, with large daily production and a promising underground reserve. Deliveries of fuel oil and crude gasoline to the Standard Oil Co. of New York have been heavy during the past few weeks, which means good profits for both Mexican Petroleum and the Pan American Petroleum & Transport Co., which controls more than 90 per cent of the former.

However, Wall Street, which has the habit of looking more than a few months ahead, is interested in reports that the Doheny companies are engaged in intrenching themselves with production in the United States, in case the Mexican oil fields should not come up to promises. One of these reports has to do with the possible acquisition of the California Petroleum Co. As a result of the heavy demand for California crude during the last month or two from Eastern points, California Petroleum, with production of close to 50,000 bbls. of crude daily, stands to benefit materially, and this may in part account for the reported heavy buying of the stock.

It is understood that the same interests which are responsible for the success of the Mexican Petroleum Co. are behind the California Petroleum Co., which lends color to the report of a consolidation of these companies in the near future.

Increases Capital

The stockholders of the Cities Service Co., last Thursday, ratified the increase in the authorized common capitalization from $100,000,000 to $400,000,000. On Friday the directors took up the question of dividends and decided not to declare a larger stock dividend at this time. The policy of making monthly stock payments in scrip will be continued. The directors, after the meeting, announced the declaration of the regular monthly dividends of 1¼ per cent, payable in common stock scrip on the common, in addition to the usual one-half of 1 per cent payable in cash scrip. Monthly cash dividends of one-half of 1 per cent on both preferred and preference B stocks were declared. All dividends are payable February 1 to stockholders of record January 15.

The Standard Oil Co. of Indiana declared a stock dividend of 100 per cent, in accordance with plans already forecasted when directors announced that stockholders would be asked to authorize an increase in the stock from $140,000,000 to $250,000,000 in order to permit of such a distribution.

The company has been paying dividends at the rate of $4 per annum on the stock, but what the dividend rate will be on the new capitalization has not been indicated. A statement of Col. Robert W. Stewart, chairman of the board, stated that dividends would be governed by the earnings of the company. The old capital stock of $140,000,000, of which only $100,700,000 had been issued, has a par value of $25 per share. The company's profit and loss surplus as of September 30, last, was approximately $176,000,000, indicating that there will be still a large surplus after payment of the 100 per cent stock dividend.

Financial Notes

Union Tank Car.—The Union Tank Car Co. has issued a notice to holders of the company's equipment trust 7 per cent notes, series A, due August 1, 1930, announcing that the company has elected to redeem $1,000,000 principal amount of the notes of this issue at 102½ and accrued interest. The notes drawn by lot must be presented for redemption and payment at the Equitable Trust Co. on February 1 next, as interest on such notes ceases on that date.

White Oil Corporation.—Reports of the White Oil Corporation and subsidiaries for the nine months ended September 30, 1922, shows deficit of $354,610 after charging out interest, loss on sale of capital assets and leases abandoned at cost.

The consolidated income account for the nine months ended September 30, 1922, (including the United Central Oil Corporation and subsidiaries operated separately January 1 to March 7, 1922, and combined thereafter), follows:

Gross profit	$684,538
Other income	58,655
Total income	$743,193
Expenses	546,747
Operating profit	$196,446
Interest	207,476
Loss on sale capital assets	33,334
Leases abandoned at cost	310,246
*Deficit	$354,610

*Before depletion and depreciation.

Union Oil of Delaware.—In a letter to stockholders, James J. Brookmire, president of the company, says that the company's total assets after distributing 2,084,127 shares of Shell Union Oil Corporation to Union of Delaware stockholders and after the sale of two oil tankers, are estimated at $1,016,001. The liabilities for Federal taxes, expenses incidental to liquidation and other contingent liabilities are placed at $729,177. There will then remain an estimated balance of $286,824 for a final liquidating dividend on 1,389,418 shares of Union of Delaware no par value stock. Mr. Brookmire also states that when all liabilities of the company have been satisfied it is probable a cash dividend will be paid in final liquidation of the company's affairs.

The stockholders of the Union Oil Co. of Delaware have already received 1½ shares of no par value common stock of the Shell Union Oil Corporation for each share of Union Oil Co. of Delaware stock.

INCREASES CAPITAL STOCK

Chicago, Ill., Jan. 1.—The Viscosity Oil Co. of this city has increased its capital stock from $150,000 to $250,000. According to officials the increase was made in order that the company's assets would be in line with its capital stock.

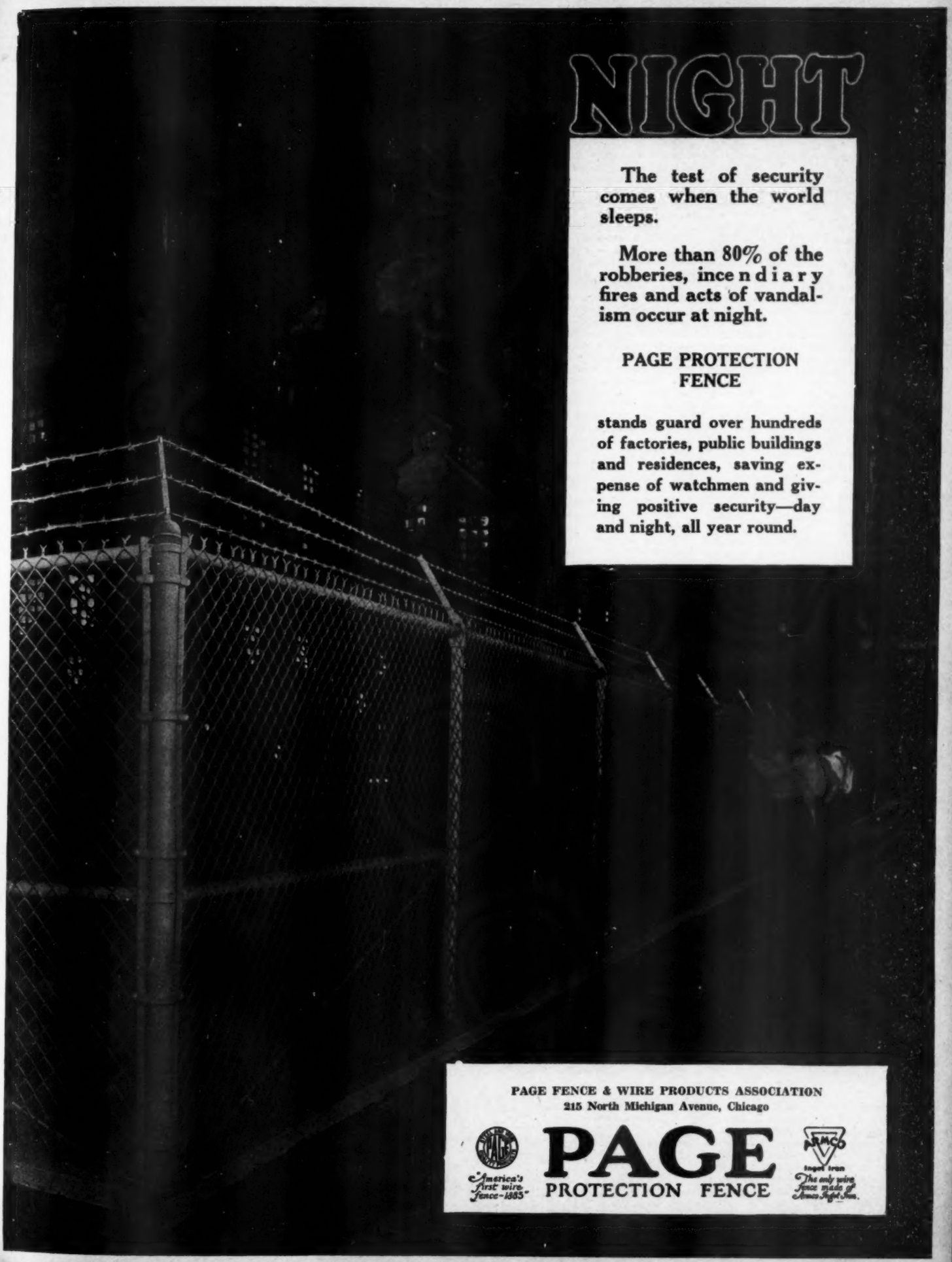
NEW YORK STOCK EXCHANGE—LIST OF ACTIVE STOCKS

No.	Stock—	Par	Annual Dividend	Closing Jan. 2	Quotations Dec. 26	Range, 1922 High	Low
1.	Associated Oil	100	6	122	*118½	136½	99
2.	Atlantic Refining, common	100	20	120	115	157½	90
3.	Barnsdall "A"	25	..	34½	29½	56¼	19¾
4.	Caddo Central Oil	..	..	7¼	4⅞	15⅛	6½
5.	California Petroleum, common	100	..	66⅞	64⅞	71⅞	43⅛
6.	Cosden & Co., common	..	†4	53⅞	52½	53¾	31⅝
7.	General American Tank	..	†3	*68	68	80	46⅝
8.	General Asphalt	100	..	48⅝	48¾	73⅝	27½
9.	Houston Oil	100	..	70¼	70⅝	91⅜	61¼
10.	Indiahoma Refining	25	..	*12	14	25	12
11.	Indian Refining	10	..	*6¼	*6⅞	11⅝	5⅜
12.	Invincible Oil	50	..	15½	14⅝	20¼	12⅛
13.	Island Oil & Transport	10	..	⅝	⅝	3	¼
14.	Kansas & Gulf	10	..	1⅜	1⅜	7½	1⅛
15.	Marland Oil	..	†4	29½	28⅜	46⅜	22⅝
16.	Mexican Petroleum, common	100	12	293	*300	322	106⅜
17.	Mexican Seaboard	..	6	18½	17¼	34½	14½
18.	Middle States Oil	10	12	12	11⅜	16	11
19.	Oklahoma Producing & Refining	5	..	2	1⅜	4⅜	1⅜
20.	Pacific Oil	..	†2	47½	46⅝	69⅝	42½
21.	Pan-American, common	50	12	90	93⅜	100⅝	30
22.	Pan-American "B"	50	8	82	87⅛	95⅝	44
23.	Panhandle Producing & Refining	..	..	3⅛	5	12	3⅜
24.	Phillips Petroleum	..	†2	48⅝	46⅝	59¼	28¼
25.	Pierce Oil, common	25	..	4⅛	4¼	12	4
26.	Producers & Refiners	50	..	50⅞	45½	51	24½
27.	Pure Oil Co., common	25	9	29½	27	38⅝	26½
28.	Royal Dutch, N. Y., sh	13.40	†5.20	52⅝	53¼	67	47¼
29.	Shell Transport	10	† .74	38¾	*38⅞	48⅛	34⅝
30.	Shell Union, common	..	..	12⅜	12⅞	14	10⅜
31.	Sinclair Consolidated, common	..	†2	37	32	38⅜	18⅜
32.	Skelly Oil	10	..	10	9⅜	11⅞	8⅜
33.	Standard of California	25	16	122⅞	119	135	91⅜
34.	Standard Oil of N. J., w. i.	25	20	41⅞	39⅞	46	38⅜
35.	Standard of New Jersey, preferred	100	7	117⅜	117⅝	120	113⅜
36.	Superior Oil	..	..	5	4¼	10½	4
37.	The Texas Co.	25	12	48⅜	47¾	52¼	42
38.	Texas & Pacific Coal & Oil	10	10	22¼	20½	32⅜	18½
39.	Tide Water Oil	100	..	120	127½	154	109⅜
40.	Transcontinental	..	..	14	14	20½	7½
41.	Union Tank, preferred	100	..	*109	109⅞	113	102
42.	White Eagle Oil & Refining	..	†2½	26⅝	27¼	34	25
43.	White Oil	..	..	3½	2⅞	11⅝	2⅛
	Standard Oil Stocks						
44.	Anglo-American Oil	5	10	18	17⅜	25	16¼
45.	Borne Scrymser	100	20	*118	*118	123	67
46.	Buckeye Pipe Line	50	20	90	86	110	84½
47.	Chesebrough Manufacturing, com.	100	14	*205	*205	240	177
48.	Continental Oil	100	8	154	152½	154	123
49.	Crescent Pipe Line	50	6	44	44	49	28
50.	Cumberland Pipe Line	100	8	*77	80	92½	60
51.	Eureka Pipe Line	100	8	95	*97	104½	78½
52.	Galena-Signal, common	100	..	57⅝	*57	62	40
53.	Illinois Pipe Line	100	16	167½	161	192	158
54.	Indiana Pipe Line	50	20	97	*89	110	82
55.	National Transit	12.50	14	*26	25	31½	23
56.	New York Transit	100	16	132	*129	214	118
57.	Northern Pipe Line	100	10	*108	106½	125	91
58.	Ohio Oil Co.	25	27	75	73½	73½	64
59.	Penn-Mex Fuel	25	..	17	*16	45	16
60.	Prairie Oil & Gas	100	23	220	*205	250	173
61.	Prairie Pipe Line	100	18	111	109	111	75
62.	Solar Refining Co.	100	10	*175	*170	210	168
63.	Southern Pipe Line	100	8	98½	95	110	85
64.	South Penn Oil	100	6	170	148	249	143
65.	South West Pa. Line	100	4	*66	66	70½	50½
66.	Standard of Indiana	25	16	63	58	67½	42
67.	Standard of Kansas, w. i.	25	15	46¼	42⅜	56	41
68.	Standard of Kentucky	25	16	78	81	131	76
69.	Standard of Nebraska	100	10	*190	*180	225	160
70.	Standard Oil of N. Y., w. i.	25	16	48⅝	47⅝	60	41⅜
71.	Standard of Ohio, common	100	16	175	*260	297½	190
72.	Swan & Finch	100	..	*24	*24	39	24
73.	Vacuum Oil, w. i.	25	16	47¼	41	44	36½
74.	Washington Oil	10	20	*22	24	32	20
	Miscellaneous Stocks						
75.	§Atlantic Lobos Oil	..	..	5⅜	6	12½	6
76.	Cities Service, banker's shares	..	‡21	17⅜	17⅝	24⅜	17
77.	Gulf Oil Corporation of Pa., w. i.	25	6	56¼	50⅜	71⅜	45
78.	§Humble Oil & Refining, w. i.	25	4.8	*32	*33	39	30
79.	§Imperial Oil (Ltd.)	25	12	113	114½	131	97½
80.	§International Petroleum (Ltd.)	..	x25	22½	20⅝	27⅜	14
81.	§Magnolia Petroleum	100	6	*153	160	259	150
82.	Mammoth Oil "A"	..	..	48	43¼	44	40

*Bid, no sales. †In dollars. §6 per cent in cash and 15 per cent stock dividend declared; now being paid in scrip. §Quotations furnished by Carl H. Pforzheimer & Co. xCents per share.

The Oil and Gas Journal's weekly average price of 20 representative petroleum stocks listed on the New York Stock Exchange weekly was as follows:

Jan. 2	60.10	November 21	56.89	October 10	62.55
December 26	59.20	November 14	56.22	October 3	60.46
December 19	57.26	November 6	60.00	September 26	60.60
December 12	56.22	October 31	59.00	September 19	59.02
December 5	58.01	October 24	62.41	September 12	59.85
November 28	57.12	October 17	62.84	September 5	59.30


NIGHT
The test of security comes when the world sleeps.
More than 80% of the robberies, incendiary fires and acts of vandalism occur at night.
PAGE PROTECTION FENCE
stands guard over hundreds of factories, public buildings and residences, saving expense of watchmen and giving positive security—day and night, all year round.
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The only wire fence made of Armco Ingot Iron

NORTH TEXAS REFINED MARKET IS PRACTICALLY AT STANDSTILL

(By Staff Correspondent)

FT. WORTH, Tex., Jan. 2.—Market conditions in north Texas this week are just as hard to describe as those of a week ago principally because everyone, whether he be buyer or seller, seems more interested in checking over business for last year than working up new business for 1923. Then, too, sufficient time has not elapsed since the holidays to permit the market to get well under way again.

Crude oil, while not what might be termed free, is nevertheless not very difficult to secure provided the refiner can show sufficient collateral to cover his purchases. This is indicated by the fact that daily refinery crude runs are only a few thousand barrels less than they were in the middle of last summer. A few plants which make a practice of discontinuing operations about this time every year are now shut down, but with those exceptions nearly all others which have been running all the year are still doing so, although a few have slightly reduced their daily takings of crude. So far, most producers seem to be content with small premiums, figuring that in paying the advanced prices resulting from the grading of crude refiners are doing all they can in view of the present market for finished products.

Railroad Situation Better

The transportation situation has shown much improvement during the past 30 days until now nearly all refiners have enough equipment to take care of their orders and in fact nearly enough to handle their entire output were there a market for the products they are manufacturing. With few exceptions sales managers report their orders in good shape and declare they will be able to handle January's volume of business without practically any delay. As is usually the case, very few sales have been made extending beyond December 31 and, as a consequence, the bulk of January's business will have to originate in January as practically all old orders will be cleaned up during the first 10 or 15 days of this month. With the exception of a small amount of high gravity material moving on old orders there is no export business of consequence and exporters interviewed on the subject of future business are rather non-committal except one or two of them declare they may have an outlet for a small amount of high gravity gasoline.

The market price in its accepted sense is usually understood to be that at which a commodity changes ownership, in other words, if the buyers of a product are offering one range of prices, the sellers quoting another scale and little, if any, business being transacted, it could almost be said that there is no market. This condition prevails in north Texas today with regard to practically all grades of gasoline. Refiners in this district were a little slow in getting their prices up in line with those of Group 3 plants, but most of the larger refiners are now asking practically the same as the Group 3 and Kansas refiners. This has created a rather confusing situation. There are, of course, quite a few cars moving at the prices being quoted by refiners, but not nearly so much as at the old prices. Buyers paying current prices are the exception rather than the rule, and are only those who are forced by circumstances beyond their control.

Purchasers Oppose Advance

Purchasers of all grades of gasoline seem to feel that they should be entitled to secure their requirements at the prices which were in effect before Christmas, especially in view of the fact that they contend there has been no change in fundamental conditions warranting an advance in gasoline prices, and point out that considering the quantity of gasoline reported in storage with winter only barely started, that there should be reductions if any change was made at all in the market.

On the other hand, refiners are one in declaring that there never has been any justification for prices going as low as they did and that the only way they have of insuring a continuation of business is by demanding a better price for their motor fuel. On account of this wide divergence in opinion between the buyer and the seller the range in price in this week's quotation is somewhat wider than is ordinarily given so as to give an idea of what refiners are asking and at what figure jobbers are trying to buy.

Many manufacturers of natural gasoline are following the footsteps of straight run refiners in that they have also advanced their quotations. They feel that if straight run gasoline is worth from one-half to a cent per gallon more than it was a week ago natural gasoline has also increased in value to the same extent. Whether or not they will be successful in maintaining this position remains to be seen. The manufacturers of natural gasoline, however, is under an additional handicap in that his evaporation loss through storage will in a short time offset any increase in price, consequently most manufacturers prefer to keep their product moving rather than store it for any length of time in anticipation of an advancing market.

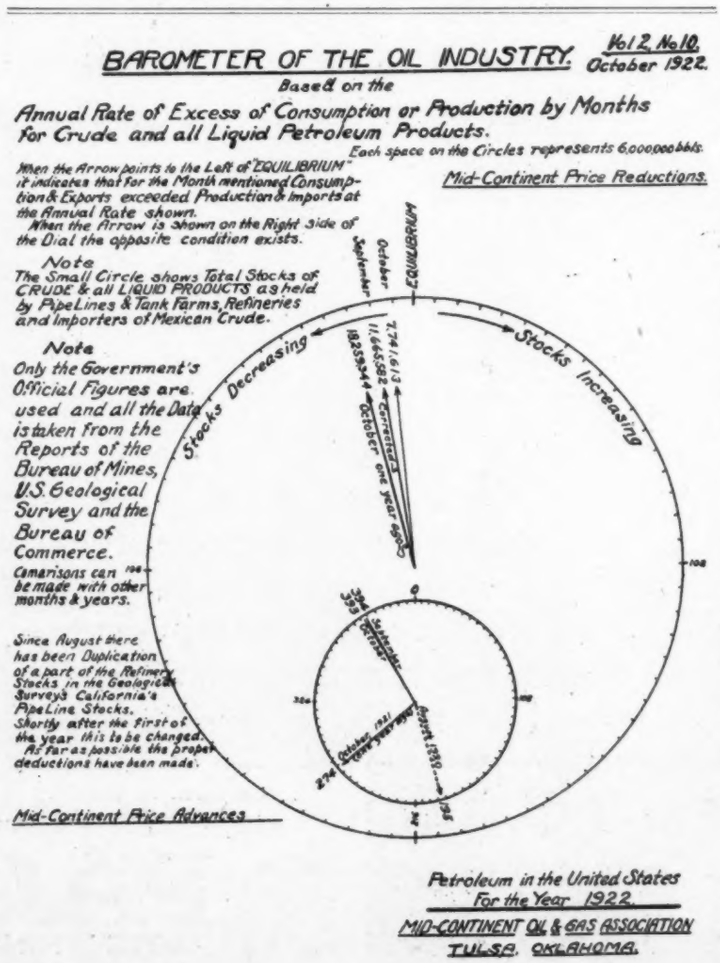
Those refiners who have advanced the price of gasoline are not overlooking the fact that to make the effort a success, higher prices must be obtained for blended gasoline. To bring this condition about they have advanced their quotation on blended naphtha, making it imperative that the blender advance the price for his finished product to prevent a loss. A number of blenders who do not have the raw material to manufacture their products are simply laying out of the market for the time being awaiting developments. Others who are in a position to do so are following the lead of refiners and advancing their prices accordingly.

Kerosene, both prime white and water white, is becoming rather sluggish and is moving only through the usual domestic channels and then only in small quantities. Exporters are purchasing little kerosene at present prices, claiming that just now the foreign market is somewhat overstocked and they have no place to put additional quantities. Domestic buyers who ordinarily purchase in large quantities seem to be following the exporters' lead and are not showing much interest, figuring probably that further price recessions will occur in the near future. While stocks in one or two cases are becoming cumbersome the majority of refiners are fairly well fixed in so far as their kerosene is concerned and are not worrying particularly about its disposition.

There is but little, if any, change in the gas oil situation from what it has been for the past several months. Stocks are not very heavy and refiners are able to move their output in fairly good shape so that it does not cause them much concern. In addition, they always have the alternative to discontinue the cutting of gas oil when it is not a profitable practice.

While there have been no fuel oil orders of much consequence placed during the past week a number of the railroads and public service corporations are in the market this week and should close for their January requirements within the next day or two. A number of large buyers are still holding off on their purchases, figuring that prices will show further weakness before they increase and that they can better afford to cover their requirements currently than to step in and buy heavily on the present market. Furthermore, the majority of large consumers in this territory have their own storage and are in a position to play the market, filling up on low prices and withdrawing from the market during the period of high prices.

Fuel stocks are increasing somewhat, but up to the present time there has been enough current business to prevent their becoming disagreeably heavy and sales managers without exception express themselves willing to hold their fuel oil unless they can secure current market quotations or better. To date there has been very little real winter weather and sales managers believe that when once cold weather sets in a demand will develop which will warrant an advance in prices. In the meantime they are content to stand pat.


BAROMETER OF THE OIL INDUSTRY.
Vol 2, No 10, October 1922.
Based on the
Annual Rate of Excess of Consumption or Production by Months for Crude and all Liquid Petroleum Products.
Each space on the Circles represents 6,000,000 bbls.
When the Arrow points to the Left of "EQUILIBRIUM" it indicates that for the Month mentioned Consumption & Exports exceeded Production & Imports at the Annual Rate shown.
When the Arrow is shown on the Right Side of the Dial the opposite condition exists.
Note
The Small Circle shows Total Stocks of CRUDE & all LIQUID PRODUCTS as held by PipeLines & Tank Farms, Refineries and Importers of Mexican Crude.
Note
Only the Government's Official Figures are used and all the Data is taken from the Reports of the Bureau of Mines, U.S. Geological Survey and the Bureau of Commerce.
Comparisons can be made with other months & years.
Since August there has been Duplication of a part of the Refinery Stocks in the Geological Survey's California & PipeLine Stocks. Shortly after the first of the year this to be changed. As far as possible the proper deductions have been made.
Mid-Continent Price Reductions.
Mid-Continent Price Advances
EQUILIBRIUM
September
October
Stocks Decreasing
Stocks Increasing
Corrected one year ago
Petroleum in the United States For the Year 1922
MID-CONTINENT OIL & GAS ASSOCIATION
TULSA, OKLAHOMA.
Issued Monthly
File this for future reference
Prepared by
Isaac Lday

SHIPPING CONTRACT IS NOW EFFECTIVE

HOUSTON, Tex., Jan. 1.—Effective today, the Gulf Refining Co. will begin bunkering shipping board vessels operating to Galveston, Houston and Texas City under a subcontract awarded to that company by the Standard Oil Co., which was recently given the shipping board bunker contract for a majority of the ports along the Northh Atlantic and gulf ports. The new contract is to run for the calendar year of 1923 and is accompanied by an increase of virtually 50 per cent in the price of bunkers.

It was stated by steamship operators yesterday that the increase in the price of bunkers under the new contract will mean an additional expenditure of about $4,000 per round trip on all of the larger vessels operated out of this district. The price of crude oil under the new contract will be $1.30 per bbl., as compared with 90 cents per bbl. under the old agreement.

Despite the fact that the bulk of the oil to be supplied shipping board vessels by the Standard Oil Co. is to come from the Pacific coast, vessels bunkered by the Gulf Refining Co. will continue to get Mexican crude.

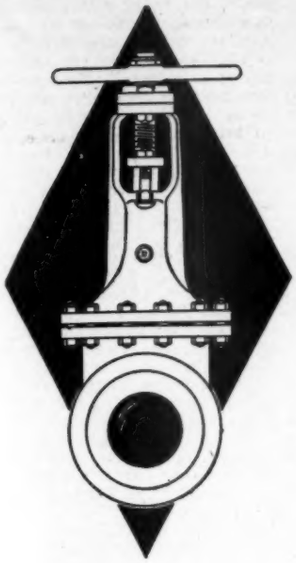
Charles A. Keenan, general agent for the Gulf Refining Co., stated yesterday that the imports of crude oil by this company during the new year were to be materilly greater than last as a result of the new contract. More tankers of this company will consequently come into here during the year. Mr. Keenan stated that the new contract will not mean an addition of any new tankers to the Gulf Refining Co.'s fleet.

SEEK INFORMATION AS TO NEXT CONVENTION

CHICAGO, Ill., Jan. 1.—The National Petroleum Marketers Association is sending out a questionnaire to all members in connection with the proposal to hold a convention in the spring. Members are asked as to when they want the convention to be held and where. Chicago, Kansas City and St. Louis are the cities suggested. At the October meeting, the board of directors of the association declared themselves in favor of an early date for the spring convention in order that members could buy new equipment which could be installed before the opening of the spring business.

UVALDE TO GET GAS

HOUSTON, Tex., Jan. 1.—Arrangements are being made to pipe gas from the Sun Co.'s No. 1 Pryor in Zavalla County to the town of Uvalde, a distance of 12 miles. The town has a population of about 4,000. The capacity of the well is estimated at 15,000,000 feet. A location has been made for No. 2 by the Sun Co.



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ROUSEVILLE SUPPLY CO., Rouseville, Pa.
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WESTERN DISTRIBUTORS:

MURRAY TOOL & SUPPLY CO., Cleveland, Tulsa, Yale, Pawhuska, Burbank and Kaw City, Okla.
KEYSTONE PIPE & SUPPLY CO., Fort Worth, Breckenridge, Wichita Falls and Graham, Tex.

Stocks of Oil Well Lines Are Carried at These Points

PIPE LINE OPERATIONS ACTIVE IN NORTHWEST

By F. B. Taylor

Casper, Wyo., Dec. 30.—Pipe line work is active in this section and preparations are under way for additional lines in the spring. Surveyors are now in Nebraska on the great line that is to be laid by the Sinclair interests from Teapot Dome to Kansas and the stretch from Teapot Dome to the Wyoming State line near Torrington is completed and ready for the stringing of the pipe and the right of way crew. The line will not come to Casper but will strike directly towards Kansas from the Teapot Dome and continue on as straight line as the topography of the country will permit between the two points. Last summer it was thought that this line would be laid with 8-inch pipe with 10-inch loops but later reports indicate that the size of the line will probably be increased as it is considered a question whether an 8-inch line would carry the Teapot Dome production together with the royalty crude from the Salt Creek Field that was awarded the Sinclair interests by the Interior Department last week.

In Montana the first of the 6-inch pipe for the new pipe line of the Illinois Pipe Line Co. that will carry oil from Sunburst to Coutts, across the Canadian boundary into Canada, is rolling into Sunburst and the surveyors have completed their part and the actual work of stringing and laying the line will start at once. The delivery end of this line will be at the tank farm of the Imperial Oil Co. at Coutts, Alberta, and the line will save considerable in the cost of crude transportation to the Imperial refinery at Regina, Saskatchewan.

The Producers & Refiners' new line from Riverton to Lander, Wyo., that is now serving Lander with gas from the Sand Draw Field, is fully tested and working satisfactorily. The Producers & Refiners' new oil pipe line from Glenville on the Union Pacific Railroad east of Rawlins, Wyo., to the Ferris Field has about 18 miles to complete. The survey is finished and the laying is going ahead in spite of bad weather. The work on the refinery at Glenville, Wyo., is also being rushed in spite of the winter season and this plant will be ready to start boiling oil about the first of March.

The Texas Co.'s plant at Casper has been experiencing many delays. At first it was given out that this plant would start operations December 1, then the first of the new year and now the statement is made that February 1 will see the stills in operation. The Texas Co.'s plant is well equipped and modern in every way. The stills will be fired with fuel oil as there is no gas supply available for this plant to operate on like the Midwest Refining Co. and the Standard of Indiana use under the stills in the big refinery west of the city.

I. C. C. SUSPENDS RULING ON OUTAGE

The Interstate Commerce Commission on Tuesday suspended the ruling in regard to outage requirements in the shipment of natural gasolines. The ruling which became effective January 1, made outage allowances as high as 5 per cent. The previous maximum requirement had been 4.1 per cent. In connection with the suspension it was announced that a hearing will be held in Washington, D. C., on January 6, to determine whether the action should be made permanent.

Natural gasoline manufacturers as represented by the Association of Natural Gasoline Manufacturers have protested the new ruling from the time it was announced. The matter was discussed and protests made at the meeting held by the association at St. Louis, Mo. in December in connection with the convention of the American Petroleum Institute. The manufacturers claim that the outage allowances are excessive and result in unnecessary losses to them.

The commission at the same time suspended the ruling which provides that placards may be removed from tank cars in which natural gasolines are shipped as soon as the cars are unloaded. It has been contended by manufacturers that these should not be removed until the car is returned to the shipper and properly cleansed. They claim that gases still remain in cars after being unloaded and for that reason the same precaution in regard to placards should be taken as when loaded.

OFFICIAL GOES ABROAD

New York, Dec. 31.—J. R. Simpson, a vice president of the Sinclair Consolidated Oil Corporation, in charge of foreign sales, has gone to Europe. His business abroad is partly in connection with companies affiliated with Sinclair Consolidated—the Compagnie Industrielle des Petroles and Compagnie des Huiles Sinco in France, and the Union Petroleum Co. of Belgium, with headquarters at Antwerp, and a refining and compounding plant at Ghent. Colonel Simpson is also head of Sinclair Exploration Co., which is conducting the development of petroleum property in Angola, Portuguese Southwest Africa.

LAST MINUTE *from* OKLAHONA

A Wilcox sand producer in the Depew district, Creek County, has been brought in by the Gypsy Oil Co., the nearest Wilcox sand production to the well being the Prairie Oil & Gas Co.'s well about 2¾ miles north. The Gypsy well is No. 1 Wildcat, NE cor. SW, Section 8-15-8, a half mile west and south of the Hiram Oil & Gas Co.'s big well in the same section. The Gypsy well missed production in the Dutcher sand, but found the top of the Wilcox sand at 3,785 feet. At 3,831 feet, it was flowing 300 bbls. a day and after a shot it started at 33 bbls. an hour through a bridged hole.

A showing of oil and gas in deep sand was found by the Ostot Developing Co. No. 1 White, SW cor. NE, Section 6-26-1w, in Kay County. Sand was topped at 3,485 feet, and was reported spraying oil and making gas. An underreaming job is on.

REFINERS HOLD NEW GASOLINE QUOTATIONS

(Continued from page 50)

of the ordinary but sufficiently heavy to keep current manufacture moving.

Fuel

Fuel oil is a little stronger than a week ago. At that time it was possible to get all you wanted at 90 cents, whereas some sales are now being made at 92½ cents with the marketers stating it is not any too plentiful even at this figure. Mid-Continent sales managers are disposed to discount the effect on the Mid-Continent fuel prices of the reported heavy purchases of Smackover crude by the railroads. The Cotton Belt is understood to have bought 3,000,000 bbls. of this crude to be delivered over a period of three years at a flat price of 75 cents a bbl. The Missouri Pacific has also contracted for 1,000,000 bbls. at a price not announced. Refiners argue that while such sales may have some slight psychological effect upon the minds of purchasers of Oklahoma fuel oil, it cannot seriously affect this situation as the roads traversing this and other contiguous States must buy their fuel where it is accessible to their lines and furthermore that they will have to buy from refiners in this territory if only from a tonnage standpoint.

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Savings

of from

$1,000 to $15,000

are being made

Every Year Per Tank

Do you realize what a big percentage of evaporation loss you can save on oil storage?

No less an authority than the United States Bureau of Mines points to an approximate yearly loss (first year) on a 55,000-barrel, ordinary wood top tank, containing crude, of $6,930—1,650 barrels of gasoline lost out of the crude at 10 cents a gallon. **Think of it—$6,930 loss on one tank alone for one year.**

An OCECO equipped all steel tank will cut your evaporation to a minimum of 200 barrels, or $840—a saving of $6,130. **And this saving is on evaporation alone.**

You also save on your insurance premiums, ¼ to ½, amounting to from $1,000 to $2,000.

These savings are too important to ignore. In two or three years they are enough to build a standard all steel OCECO equipped tank.

Every Oil Company Official and Engineer

should have a copy of the OCECO Oil Tank Standards, covering tank construction and equipment which tell how to build tanks so that you can make these savings.

These standards have been passed upon by the engineers of the Underwriters' Laboratories, Inc.

Manufacturers of Fire-Prevention and Evaporation-Prevention equipment for Tanks.

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The Oil and Gas Journal
PRODUCING REFINING MARKETING
(THE OIL INVESTORS' JOURNAL)
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Oklahoma and Kansas - - - - - - - Charles W. Wood
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Kansas City, Fort Worth, Omaha, Philadelphia, Louisville, Cleveland, Denver, Dallas, New Orleans, San Francisco

OSAGE OIL LESSEES RE-ELECT OFFICERS AND DISCUSS OUTAGE

The annual meeting of the Osage Oil & Gas Lessees Association was held Tuesday afternoon and the old board of directors was re-elected with the addition, however, of four members, J. H. Gardner, of the Gardner Petroleum Co., Tulsa; J. B. Steele, of the Kewanee Oil Co.; W. G. Skelly, of the Skelly Oil Co., and R. F. McArthur, of the Barnsdall Oil Corporation. The old officers were re-elected: Frank Breene, president; Burdett Blue, vice president; Harry H. Smith, secretary, and Dana Kelsey, treasurer.

An important piece of business before the meeting was the report of the joint committee of the Osage Oil & Gas Lessees Association and the Association of Natural Gasoline Manufacturers, which had been investigating the question of outage on natural gasoline produced from Osage County casinghead gas with a view of petitioning the Interior Department to make an allowance for it. This committee had made an investigation of the books of a large number of plants in Oklahoma and found that the outage loss between the plant and the destination of the gasoline averaged no less than 3 per cent, running in some cases as high as 6 per cent. At present the gasoline manufacturer pays the Osage producer on the basis of 33⅓ per cent of the gasoline content of the gas at the loading rack and of this the Indian receives one-sixth, but the manufacturer finds that in shipping the gasoline it reaches its destination with an average evaporation loss of 3 per cent and as the purchaser of the gasoline pays for what he receives and not for what is lost in transit, the manufacturer raises the question as to who should stand this outage.

The committee had prepared a petition to the secretary of the interior to revise its regulations so that this 3 per cent outage could be deducted before payment was made to the Indian and when this was brought to the attention of the meeting yesterday the question immediately arose as to how it would affect the producer of the gas. It was thought highly improbable that the department would consent to a settlement on a basis of 97 per cent while the producer was being paid on a basis of 100 per cent. It was decided to hold another meeting Wednesday between the joint committee and a committee appointed at Tuesday's meeting, consisting of J. H. Gardner, Archie W. Leonard and Burt H. Collins, representing the producers with the object of obtaining the consent of the producers to allow a 3-per cent outage in their settlement with the manufacturers.

At the Wednesday meeting it was agreed to postpone action for the present at least. It developed from the discussion that the saving which would accrue to the gasoline manufacturers in the event the outage was deducted from the royalty payments to the Indians was small compared to the probable loss to the producers in the event deductions for outage was made for gas obtained from their wells.

PRAIRIE P. L. SHIPMENTS

The Prairie Pipe Line Co. shipments from Texas, Oklahoma and Kansas for the month of December were 5,170,889.47 bbls., an average of 166,803 bbls. daily. The average for November was 185,792 bbls., and for October was 189,291 bbls. The daily average shipments for December fell off 18,989 bbls. from the November records and 22,488 bbls. from the record for October.

PIPE LINE DIVIDEND

PITTSBURGH, Pa., Jan. 3.—The Eureka Pipe Line Co. has declared a dividend of $3, payable February 1 to stock of record January 15.

SENATE INVESTIGATION

A resumption of the hearings by the LaFollette committee of the Senate on the petroleum industry was scheduled for yesterday, with H. C. Folger, of New York, as the first witness.

LESS DEMAND FOR REFINED PRODUCTS

PITTSBURGH, Pa., Jan. 1.—A slight falling off in the demand for some of the refined products was about the only change noted in the Pittsburgh district during the past week. Owing to the falling off in demand it is not expected that the price will be advanced in sympathy with the 25-cent advance in the crude market last Saturday morning.

Kerosene has also slowed down and refiners report stocks accumulating. Both lubricants and fuel oil are slow. The first named has been in slow demand for several months. Now that the industrial situation is clearing up the prospects for the future are more encouraging. The fuel oil market has been rather erratic for some time. At times the demand has increased and in a short time slumped. None of the refineries has at this time a large stock on hand. Coal is now available to meet the demand for fuel and to this may be attributed the reduced demand for fuel oil.

3 DEEP TESTS DRY IN EAST CENTRAL TEXAS

MEXIA, Tex., Jan. 2.—The fields of Limestone and Navarro Counties are very quiet and no completions were reported in the week in review, and no new work started. The Humphreys Petroleum Co.'s No. 36 Berthelsen, in the Mexia Field, has reached a depth of 4,625 feet. In the Kosse district and near by there are a number of tests below the depth at which the Humphreys Oil Co. found a pocket of oil in the well on the Jones farm but they have shown nothing encouraging. The Hobbs Oil Co.'s No. 1 Outs is temporarily abandoned at 3,772 feet; Humphreys Oil Co.'s No. 1 Allen, temporarily abandoned at 3,870 feet; same company's No. 1 Bassett, drilling below 4,330 feet; McPhail Oil Co.'s No. 1 Rogers, temporarily abandoned at 3,805 feet; Revere Oil Co.'s No. 1 Rogers, shut down at 3,805 feet; Atlantic Oil Producing Co.'s No. 1 Gunter was drilling at 4,000 feet. Abernathy and others were preparing to abandon a test on the Williams farm, at 4,700 feet.

In Falls County the Denny Mexia Oil Co. is drilling below 4,280 feet in No. 1 Klapp.

In McLennan County the Tudor Oil Co.'s No. 1 Shelton was milling bit at 1,947 feet; Mexia Central Oil Co., drilling at 1,910 feet in No. 1 Schnecker; Mexia Commonwealth Oil Co.'s No. 1 Holloway, drilling at 1,095 feet.

In Milam County, Guiberson and others' No. 1 Posey was at 3,375 feet with the 6⅝-inch casing set.

In Robertson County, the Campbell Mexia Oil Co.'s No. 1 Halloway was drilling below 3,706 feet.

In Dallas County, W. F. Nabors and others' No. 1 Eubanks was drilling at 2,510 feet.

There were three dry holes in the wildcat operations in the east side of the State. In Hopkins County the Cousins Hart's No. 1 on the Mitchell survey was abandoned at 3,410 feet. In Van Zandt County, Curley & Lee's No. 1 Andrews on the Roberts survey was abandoned at 4,100 feet. In Raines County the Texas & Pacific Coal & Oil Co.'s No. 1 Humphreys on the J. W. Scott survey was abandoned at 3,805 feet.

In Kaufman County Dowley and others' No. 1 McKenzie was drilling below 2,670 feet. The Trapshooter Reilly Oil Co.'s No. 1 Porter was fishing at 3,000 feet.

The Automobile had its skeptics, so did Oklahoma Paraffin Crude—but both won out on Service

When the automobile, or "horseless carriage", was introduced a little over a quarter-century ago, most "common sense" people laughed it to scorn.

First, they said it wouldn't run—then, they said it would never be more than a "toy" for the rich. But, the fact that we now have over ELEVEN MILLION automomobiles in the U. S. alone shows that the early skeptics were wrong on every count.

It was much the same with Oklahoma Paraffin Base Crude, discovered in Northern Oklahoma only a few years ago. First, oil men said that it didn't have the lubricating quality of eastern crude—then, they said there wasn't enough to really count. But, again the skeptics were wrong.

Oklahoma Paraffin Base Crude is rapidly becoming recognized everywhere for its inherent lubricating quality. And, four-fifths of the country's supply of paraffin base oils now originate in the section of Oklahoma from which Empire Oklahoma Paraffin Neutrals come. Thus, Oklahoma Paraffin Crude, like the automobile, has won out on Service.

Write, wire or 'phone our nearest office now for samples and specifications of Empire Oklahoma Paraffin Neutrals. Compare them with any other oils anywhere. They have unexcelled lubricating quality—they SELL—and REPEAT!

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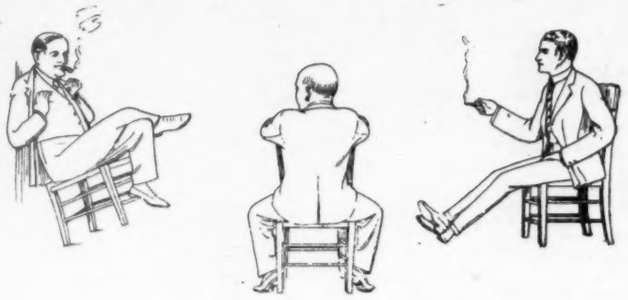
We Talked Things Over



Second thoughts, they say, are best. Dryden

WE DO NOT know just how the discussion got into such unusual channels. Business with us has been always good. But you know how it is—folks are never satisfied.

"Do you believe that Oil Men are human?" someone asked.

It sounded like one of those conundrums. For a moment it seemed that no one would take it seriously. Then—

"Just as human as you are!" boomed a voice. "They have homes and wives and kids and ambitions and troubles and everything."

"That's just the idea," chimed in the first speaker. "And if that's true, why wouldn't it be good horse sense to talk Frick-Reid service and supplies in terms of what they will do for the Oil Man as an individual?

"We have always believed," he continued, "that so long as we gave the Petroleum Industry better service and better merchandise, the industry would take care of us. We've had a lot to say about service and quality and such abstract matters. Now why wouldn't it be just as easy to be so human in our attitude and so straightforward with what we have to say, that Tom, Dick and Harry in the oil business would get the fact that our real business is to help 'em make their dreams come true?"

"If we can put over that fact," agreed someone hitherto silent, "the Petroleum Industry will take care of us in 1923 as it never has in former years."

FRICK-REID SUPPLY COMPANY

TULSA PITTSBURGH

Stores in All Principal Fields in Southwest

CHICAGO MARKET OUTLOOK FAVORABLE

Distributors Report Business During December and Latter Part of Year Exceeds Any Previous Similar Period—Gasoline Consumption Expected to Increase; Refiners May Buy Gasoline for Storage.

By JOHN B. WALDO

CHICAGO, Jan. 1.—The western distributors of petroleum products, including the large organizations which control a large number of bulk and filling stations, report, almost without exception, that their gallonage has been greater during December than for the same month in any previous year. Some of the larger companies covering a wide territory in the Midwest report that their business for the latter half of the year was 25 per cent better than during the same months in 1921.

Leading marketers in Chicago state that their business has held up very well. Some have done better than others, but some are more active than others in going after business. John Wanamaker used to say that the time to advertise was when business was dull. These concerns that report the best business believe that the time to go after business the hardest is when orders are less easy to get.

Outlook Favorable

Looking ahead, the best men in the trade predict that the consumption this year will be decidedly larger than in 1922. The marketers are basing their opinions on the changed conditions from those prevailing a year ago, on the increased number of automobiles and trucks and on the evident willingness of the general public to spend its money for all kinds of merchandise at ruling prices. There is much less complaint regarding costs of living, less fear of reduced earnings and more willingness to spend. There is no sign of any decline in the popularity of the automobile. The number of machines manufactured during 1922 has exceeded all records and the demand for them is so good that the manufacturers are increasing their output. Ford is said to be planning to add 50 per cent to his production and several of the makers of the more popular cars have announced that there would be no shutting down for inventory at the first of the year, as they had too many orders on their books to lose a single day's production. Every car sold means at least several hundred more gallons of gasoline consumed in the coming year.

In a short time the Automobile Association will make official announcement of the number of cars registered during 1922 and it will be possible to make a very close estimate of the minimum requirements for this year, basing the estimate on the number of cars that were in operation at the close of 1922—as was done at the opening of that year, by basing the estimate on the number of cars owned and registered at the close of 1921. In round figures, there were 10,500,000 cars and trucks registered at the close of 1921. There have been approximately 2,300,000 cars manufactured in 1922. Add the two and deduct the number exported and junked and the total will make the number of cars that will need gasoline in 1923, with due consideration given to the demand for cars and the opportunity given by weather and financial condition of the public for their use. This may work out an increase of 25 per cent, which would call for 1,250,000,000 more gallons of gasoline than in 1922. On the basis of 30 per cent gasoline from the crude, this will require nearly 1,000,000 more barrels of crude.

Prices Advanced

Looking ahead, the refiners see this demand and they are asking, where is the gasoline to come from to fill it? There are no accumulations of gasoline in the Mid-Continent Field, according to the Western Petroleum Refiners' Association, which states that this is a fact, after a careful survey of the situation. Either the refiners must accumulate some stock now, they claim, or there will be a positive shortage next August if the consumption is at the heighth that they have reason to anticipate. They also assert that refiners cannot go ahead and refine gasoline on the basis of the prices that prevailed during the middle of December, when considerable sales of Navy gasoline were made at 10¼ cents at the refinery. Some of the larger spot cash buyers claim that they secured their requirements at 10 cents.

To sell gasoline at this price, the refiners say, is simply forcing them to absorb a loss. It would be cheaper and better for them to buy the gasoline at this price and store it, for it would cost them less than to buy the crude and refine it. That is what a number of them propose to do. They have announced their willingness to purchase large quantities of gasoline at prices at around 10½ cents and take it off the market. Among the concerns that have been mentioned as ready to buy large amounts of gasoline are Cosden & Co., Empire Refineries (Inc.), Sinclair Refining Co., and several others. At the same time they are not going to dispose of their own production at any loss and they have established a price of 11½ cents for New Navy as the basis for new business.

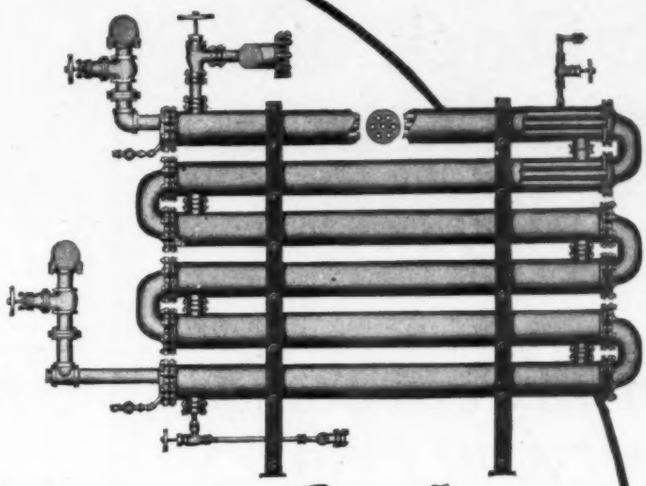
There are no quotations being made here at less, except for small amounts for spot delivery, usually single cars or a few cars either on track or for which shipping instructions must be given at once. For these the market may be as low as 10¾ to 11 cents—not lower. Quite a number of the smaller plants have adopted a waiting attitude and instructed their representatives on the selling line to take no orders without getting prices from the refinery. They are waiting to see how the market will open, but if they get discouraged they can get a price from some of the concerns who see that their own production will not reach the coming season. The argument is that if Navy gasoline is worth 11½ cents on the basis of present costs to the best refiners, and the demand looms large ahead, there is no reason for sacrificing the product at less, and if financial conditions, crude contracts or tankage force sales, sell it where it will not break the market. Another thought is that a continuance of the market at the low figure of 10½ cents means declines in tank wagon prices, and how that would hurt!

Kerosene Moving Steadily

There has been little change in the kerosene market. The movement is steady and probably is a little better, as the present demand seems a little more active. One sale of 30 cars was reported. Jobbers should consider that present indications point to the present being a low price for kerosene, for the winter at least. The trade feels that no declines in crude are in sight and what changes have been made are towards a leveling of quotations upward rather than downward. The export demand for kerosene is well reported and several cargoes are in sight for early delivery. The demand for distillate for heating is locally said to be large. The number of home heaters installed during the summer and fall that require a kerosene distillate for successful operation has been large. In fact, the fuel-oil burner in the homes seldom will

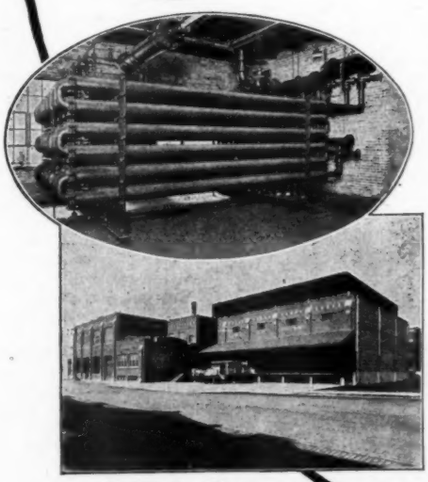
(Continued on page 72)

Where Vogt *Multitube Ammonia Condensers*



are used—low head pressure is evidence of the saving in power costs. Since power is the largest item in operating costs the importance of condenser efficiency cannot be too strongly emphasized. Our claim that the Vogt Multitube Condenser is the most efficient in the field is confirmed by the testimony of prominent engineers.

An article in the November 7th issue of "Power" gives a concise description of this construction and indicates the increasing demand for greater operating economies which the multitube condenser supplies. We give an extract:



Grawoig Ice Co., Chicago uses Vogt Condensers

This construction produces a high heat transfer and a very effective cooling surface with a minimum friction loss... The Multitube condenser has practically all the advantages of the double pipe type and the number of joints has been reduced to a small fraction of those in the double pipe type.

The Multitube type is manufactured by this company only. Our Engineers can show you how it will reduce costs in your plant.

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WE MANUFACTURE ICE AND REFRIGERATING MACHINERY, DROP FORGED STEEL VALVES AND FITTINGS, WATER TUBE AND HORIZONTAL RETURN TUBULAR BOILERS, OIL REFINERY EQUIPMENT.

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Oil Well Supply Company

DISTRIBUTORS

Stores in All Oil Fields

MEXICAN OIL GIVES CALIFORNIA FIGHT FOR FUEL TRADE IN EAST

By N. O. Fanning

New York, Dec. 30.—The fuel oil market in this territory is strong. The Mexican Government has announced new tax rates on both light and heavy Mexican crude, which makes the cost of bringing this oil to New York about 5 cents per barrel less. This may have the effect of further squeezing importers of crude oil, who must pay high rates to have this oil transported from the Pacific Coast, besides paying substantially high prices for this crude in the field. California fuel oil must, of course, compete with Mexican fuel oil here.

Most factors are quoting $1.45 per barrel (lighterage 6½ cents per barrel extra) for bunker fuel oil at New York, but it is a question how long this comparatively low price can be maintained. It is believed in some quarters that California crude oil prices may be increased after the first of the year, and the increasing scarcity of Mexican crude will transfer an additional burden on the Pacific Coast industry, which may hasten this development.

Kerosene is a firm feature of the eastern markets just now, but aside from this product and crude oil, there is little of interest, the weakness in gasoline being entirely seasonal. To all appearances 1923 will be a new record year in gasoline consumption, so that it is not the present gasoline demand which is governing refining activity, but the seasonal demand of the coming year, which must be prepared for in advance.

Gasoline is still held in New York and New England at 22 cents per gallon, tank wagon basis, while the retail price is 25 cents, the margin allowed service station dealers being 3 cents per gallon. In New Jersey, the tank wagon market remains at 21½ cents per gallon. Despite continued weakness, factors consider that the gasoline market has about reached the bottom for this winter.

The impression held in some quarters that the recent reduction of 2 cents per gallon by the Standard Oil Co. of New York in the gasoline tank wagon price presaged similar cuts throughout the country does not apparently take into consideration the fact that the New York tank wagon market had been held for a month or more 2 cents above that in other parts of the country, and therefore that the latest reduction merely brings the New York price in line with prices elsewhere.

In this respect the New York Standard's action in reducing the market 2 cents is looked upon as marking definitely the end of the downward movement for the time being, and in this light appears to be a settling, rather than an unsettling, factor.

Lubricating Oil Market Quiet

The lubricating oil market is just about maintaining its position without price concessions being made by jobbers. While there may be a slight readjustment in the price structure around the first of the year, steadying influences have been the rule in recent weeks. On the other hand, when new contracts go into effect at the beginning of the year some recessions may be noted.

The Export Market

A considerable revival in the actual export movement may be looked for after the first of the year. At least the oil trade is looking for such a development with a good deal of anticipation as marking a definite change from the sluggishness of the last year and a half. It is stated that there is a strong possibility of a downward readjustment in gasoline export prices, probably fractional, which would be merely a reflection of the reduction in prices in the United States.

The Atlantic Coast refiners have had a rather bad year, as far as the export oil market is concerned, and look for better things in 1923. Gulf Coast refiners have fared much better this year, according to statements made by exporters in this section.

Imports of Mexican Oil

Import of oil from Mexico have consisted of refined products delivered on contract from Mexican refineries. In fact, the Mexican Petroleum Corporation supplied every last barrel of fuel oil and crude gasoline which came into this port, comprising 306,000 bbls., a daily average of 43,700 bbls. Of this amount 106,000 bbls., or one-third, was consigned direct to the Standard Oil Co. of New York.

The following table shows imports of oil from Mexico during the week ended December 29, compared with the previous week (in barrels):

	Week ended Dec. 29	Week ended Dec. 22
Mexican Petroleum	200,000	60,000
Standard Oil of N. Y.	106,000	.....
Asiatic Petroleum	.....	52,000
Miscellaneous	.....	56,000
Totals	306,000	168,000

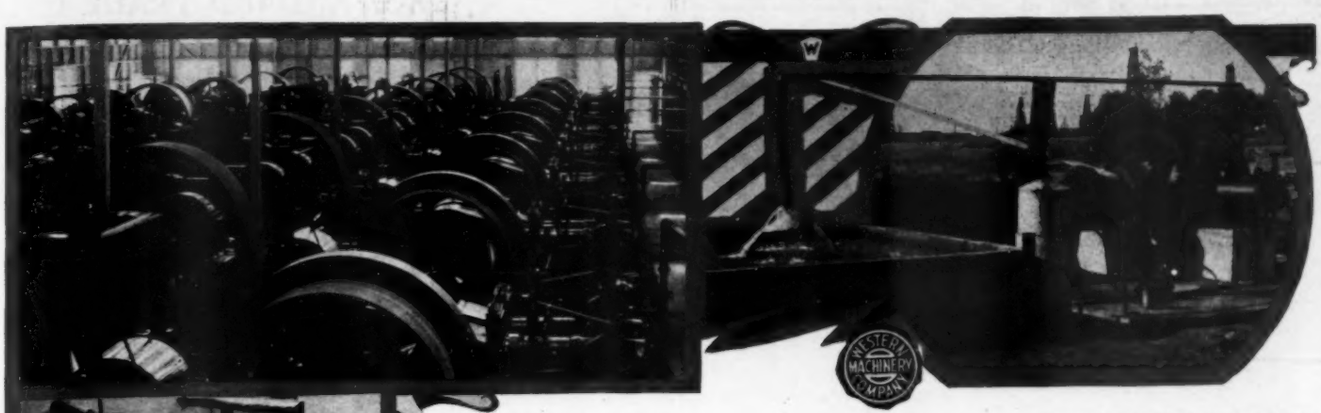
The Standard Oil Co. of New Jersey, formerly the largest importer of Mexican crude, has contracted for 9,000,000 bbls. of California crude, which is now being delivered in part. This accounts partly for the absence of this company from the list of importers of Mexican crude oil.

BUILD PIPE LINE TO SUPPLY CRUDE FOR COTTON BELT

Houston, Tex., Jan. 1.—The Houston Oil Co. has let a contract for the laying of a 6-inch line from Smackover to Camden, Ark., for the delivery of 3,000,000 bbls. of that product to the Cotton Belt Railroad for fuel at 75 cents per bbl. The deliveries extend over a period of three years. In some cases Smackover crude has been offered as low as 10 cents per bbl. at the wells, although the posted price is 30 cents. Lower freight rates between Smackover and the Gulf Coast are to become effective January 28. The present rate is a fraction over 83 cents per bbl. and the new rate will be about 71½ cents per bbl., which means that the heavy grade of the new Arkansas field can be delivered at Gulf ports, such as Port Arthur, Beaumont, Houston, Galveston and Texas City at about $1.26½ per bbl., including gathering and freight charges. The credit balance price for Gulf Coast crude is $1.25.

The Texas Co., Magnolia Petroleum Co. and Humble Oil and Refining Co. advanced Mexia credit balances 20 cents per bbl., effective December 28, which makes Mexia $1.55 and Currie (40 gravity), $1.80 per bbl. During the past month Orange and Goose Creek crudes have been contracted at $1.74 and $1.75 delivered at refineries in Houston and on the ship channel. The contracts call for the delivery of 30,000 bbls. at these figures.

The new districts in Webb and Zapata counties are also in competition with the heavy gravity Coastal product. This crude contains a percentage of lube stock and then runs into fuel oil. Buyers are paying 82 cents per bbl. at Mirando City and shipping out in tank cars. Meantime, the estimated daily average output of Gulf Coast crude is above 110,000 bbls. per day with stocks increasing. The expected advances due to the declines in the Mexican Fields failed to materialize because California crude is replacing the Mexican, buyers shipping in tankers from the Pacific coast through the canal to Atlantic coast ports and also to Europe. Each month witnesses an increase in the number of tankers engaged in handling California crude for the eastern and foreign markets.



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"Western" efficiency, operating economy and dependability are something more than claims. Hundreds of these engines are operating in various oil fields of the world, and have been for many years, so that their worth is a matter of definite record, open to any organization or individual interested.

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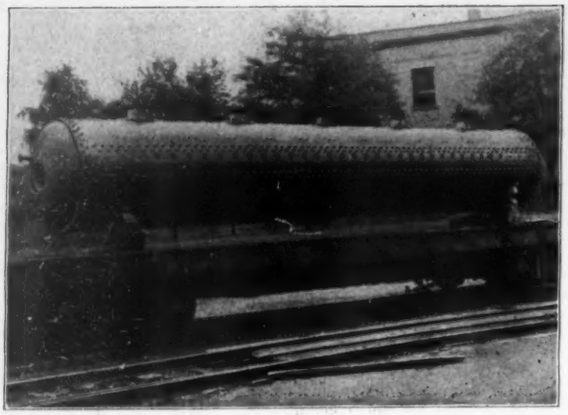

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WISCONSIN COURT UPHOLDS A STANDARD TRADE POLICY

Sweeping justification of Standard Oil Co. (Indiana) marketing methods in Wisconsin, particularly in relation to its "pump and property lease" policy, is contained in the ruling handed down by Judge Oscar M. Fritz in the Circuit Court of Dane County, in which he orders vacated, as "unreasonable and unlawful," two orders issued by the Wisconsin Department of Markets on March 13, 1922. While both of these orders covered the same practices, one was aimed at all gasoline wholesalers, while the other was directed specifically at the Standard Oil Co.

In these orders, the department of markets, through Commissioner Edward Nordman, held that the "pump and property lease" practice, whereby a wholesaler leased ground, installed thereon a tank and pump and paid the owner of the ground a commission of 2 cents a gallon on all gasoline sold from that tank and pump, amounted in fact to a rebate, an unlawful discrimination in price and an unfair method of competition.

The court curtly declares that the facts necessitate the conclusion the methods and practices of the Standard Oil Co. "do not constitute an unlawful discrimination in price or an unfair method of competition," vacates the orders of the department of markets as "unreasonable and unlawful," and declares that instead of being detrimental to the public welfare, the marketing policies of the Standard Oil Co. and other wholesalers in Wisconsin, work to the "advantage of consumers and the public."

"The natural and probable consequences of the arrangement which the plaintiff (Standard Oil Co.) had with its lessor-factors," states the court, "and the similar arrangements which several other wholesalers, affected by general order No. 13, had with their patrons, were to substantially stimulate and intensify competition among wholesale and retail dealers. All of which would probably tend to increase the number of filling stations, properly equipped for the cleaner and more efficient dispensing of gasoline, at competitive prices, to lure trade, to the advantage of consumers and the public."

In every particular, except that relating to the constitutionality of the statute on which is dependent the authority of the department of markets, the court upholds the contentions of the Standard Oil Co.; and in regard to the constitutionality of the statute admits that "there is certainly occasion for grave doubt as to the validity of the section," but refuses to pass on "the interesting question of its constitutionality" on the ground that the plaintiff (Standard Oil Co.) is entitled to relief from the unreasonable and unlawful orders of the department of markets regardless of the statute's constitutionality.

The Court's Review of Facts

Reviewing the facts brought out at the hearings held prior to the issuance on March 13, by Commissioner of Markets Edward Nordman, of the two restraining orders, the court states:

"Commencing in the year 1920, the plaintiff, as lessee, in consideration of a rental varying from $1 to $3 per month, leased in writing, for a term of one year (usually) from a person in possession of premises (sometimes upon a portion thereof subject to the right of public travel) so much thereof as was necessary for the installation of a gasoline storage tank, pump and connecting appliances. Plaintiff then delivered with one of its trucks sufficient gasoline to fill the tank; the lessor then supplied consumers, who purchased at retail, with gasoline from that tank. Thereafter, periodically, plaintiff, from its delivery truck, refilled the tank to the extent that the tank would hold gasoline to replace that which had been removed. For the gallonage thus replaced, the driver of plaintiff's truck rendered an invoice to the lessor. On the basis of that gallonage a settlement was made either at the time of such delivery, or periodically between the plaintiff and the lessor at a rate which was 2 cents lower than the price which was prescribed by the plaintiff as the price at which gasoline was to be sold to the filling station customers during the period in which that gallonage had been removed. Immediately upon the plaintiff making a change in its retail filling station price to consumers, the plaintiff's truck was sent to refill the tank and thus ascertain the quantity which had been removed and sold at the price theretofore prevailing. If the lessor sold to a consumer at a higher price than the plaintiff's filling station retail selling price, then the lessor was to account to the plaintiff on the basis of such higher price, less his 2-cent commission. The lessor was neither charged with nor required to pay for the gasoline when it was originally placed in the tank, nor for the quantity that was on hand from time to time. The 2-cent difference between the price per gallon at which the lessor sold the gasoline for the plaintiff to the consumer and the rate at which the lessor accounted to the plaintiff for the gallonage which had been withdrawn by him from the tank, less the incidental and rather insignificant loss and shrinkage in gallonage due to evaporation, etc., constituted the lessor's compensation or commission for his services and responsibilities in dispensing the gasoline.

"The entire arrangement between the plaintiff and the lessors was such that there was no sale by the plaintiff to a lessor, at any time, of the quantity of gasoline that was originally put into the tank at the first fill, or of the quantity that was added from time to time to replace that which had been withdrawn by the lessor. All that the lessor did was to account to the plaintiff for the quantity that had been removed as was ascertained by the quantity that was required to refill the tank, and that accounting was at a rate which was 2 cents less than the plaintiff's filling station retail price that prevailed during the period in which the quantity in question had been removed. The arrangement between the parties was such that there was no sale of gasoline by the plaintiff to the lessor at the time when it was first stored by plaintiff in its tank upon the lessor's premises. And likewise, there was no sale to the lessor at the time when he accounted for the quantity which had been removed prior to a refill, as ascertained by the quantity that could be put in the tank at the time of such refill. The quantity of gasoline as thus ascertained, but which had theretofore been removed, was not, at the time of such accounting, in the possession of either the plaintiff or the lessor so as to admit of a transfer of possession and title at that time. In fact, probably by that time that particular gasoline had usually been consumed and was no longer in esse as gasoline at all.

Principal and Agent

"As a matter of law, the relationship of vendor and vendee did not arise between the plaintiff and the lessor as to any of the gasoline in the tank or removed therefrom for sale to consumers generally. As regards that gasoline, the relationship between the plaintiff and its lessors was rather that of principal and agent, with the lessor functioning largely in the capacity of a factor and charged with the duties and responsibilities of a factor. (See Mecham on Agency, Bk. 5, Chapt. 4.)

"In February, 1922, the plaintiff was supplying gasoline under such arrangements to about 286 factors in that portion of Wisconsin which is south of the city of Green Bay and east of the cities of Richland Center and Reedsburg. On the other hand, at that time it was also selling directly to about 771 dealers in gasoline in the same territory under the

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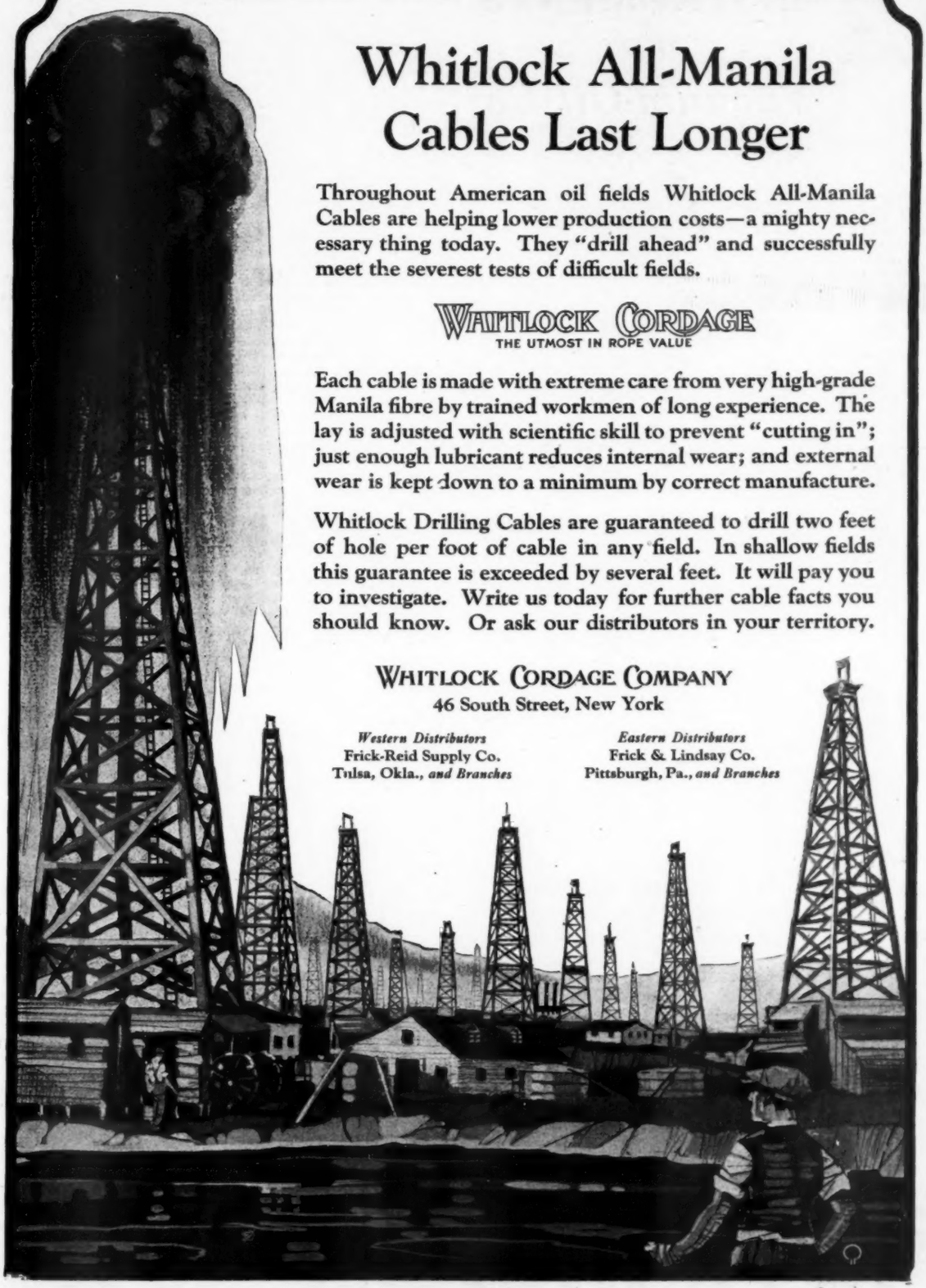
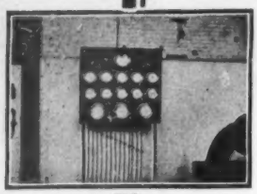
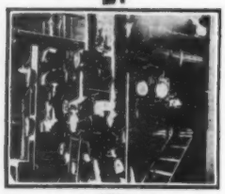




Foxboro Recording Thermometers, Gauges and Clock in Power House.

Foxboro Recording Thermometers Recording Temperature of Stills



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We make Orifice Meters, Recording and Indicating Thermometers and Gauges for use in connection with:

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The experience of the Vacuum Oil Co. is typical of the service which Foxboro Instruments render the petroleum industry.

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THE COMPASS OF INDUSTRY

ordinary conditions applicable to vendor and vendee.

"There is no proof that similar tank and pumping apparatus was not procurable by any other wholesale or retail gasoline dealer. Likewise, as far as the record discloses, theer is nothing to prevent any other gasoline producer or wholesale dealer from using the same method of distributing or handling and selling gasoline to retail consumers. Furthermore, it does not appear that there has been any discrimination on the part of the plaintiff, or any of the several other wholesale gasoline dealers in Wisconsin who install tanks and pumping apparatus and supply gasoline under somewhat similar conditions as between localities or as between persons who desired to lease premises for the installation of tanks and pumps for the handling of gasoline under similar principal and factor arrangements. There is nothing to show that such arrangement is not available to anyone, without discrimination in price or service or locality, who desired to offer premises suitable for the installation of such apparatus and the dispensing of gasoline as such factor. Neither the payment by the plaintiff to its rental nor the allowance by the plaintiff of the commission to its factors were improper or unlawful consequences of the arrangement which the plaintiff had with its lessor-factors, and the similar arrangement which several other wholesale dealers, affected by general order No. 13, had with their patrons, were to substantially stimulate and intensify competion among wholesale and retail dealers. All of which would probably tend to increase the number of filling stations, properly equipped for the cleaner and more efficient dispensing of gasoline, at competitive prices, to lure trade, to the advantage of consumers and the public.

"Although Section 1495-27, Statutes, provides that the findings of fact of the department of markets, if supported by evidence before it, "shall be presumptive," it is my conclusion that the clear and satisfactory preponderance of the evidence, including the additional evidence which was received upon the court trial, convincingly establishes the facts as stated and found above. Those facts necessitate the conclusion that the methods and practices of the plaintiff, as stated above, do not constitute an unlawful discrimination in price, or as between localities, or an unfair method of competition in business within the meaning of the statutes and common law of Wisconsin.

"Consequently, special order No. 2 and general order No. 13, made by the commissioner of markets under date of March 13, 1922, are unreasonable and unlawful. Each of those orders must be vacated and set aside as far as the plaintiff is concerned, and judgment may be entered accordingly."

CHICAGO MARKET OUTLOOK FAVORABLE

(Continued from page 66)

work successfully for any length of time on anything heavier than kerosene.

Fuel Oils

The demand for fuel oil has shown some improvement and some large sales are reported. One was mentioned of 1,000,000 gallons at 95 cents per barrel from Kansas City, and considerable business has been done. The factor that works for present prices and holds the market at present at $1 or less is the heavy offerings both from the Group 3 refiners and from the El Dorado Field where Smackover crude was offered at 15 cents to a local marketer, the difficulty being to get it out. Oil men who have returned from Smackover for the holidays say that it is undoubtedly a great field, but that it is being developed in a most wasteful manner and that the fire risk is tremendous, with all the oil stored in earthen basins until the ground is fairly greasy with crude.

Several concerns which specialize in fuel oil have developed quite a business in this cheap crude for fuel oil and they claim that for certain purposes it is just as good as the best refinery fuel oil. One concern with a refinery near this city proposes to put in a still in the field and "top" the oil, sending the distillate to the railroad by a short pipe line and storing the fuel oil until it can be sold at a profit, when shipping facilities are better. They figure that the saving will be considerable in freight and handling. The particular oil that they seek to use is stated to have a 20 per cent gasoline content and it can be bought very cheaply right now. Of course, the whole idea is temporary, but it may work well for several months at least, perhaps longer.

Gas oil has been active in the deliveries on contract. There have been several important inquiries in the market and a verified report that a large contract had been closed by the Peoples Gas Co. The price situation shows steadiness and may be a little higher when the month opens, with 2¾ cents quoted as bottom today.

Lubricating Oils

The movement of lubs continues good. There have been no big orders reported, but the demand is steady and prices firm. The industries are much better occupied than a year ago and the prospect is for a continuing demand, which will be greatly increased when the automobile industry comes into the market along in February and March. Stocks continue to be light in the West. Further advances are intimated by the fact that some producers have instructed their sales representatives to be careful regarding futures and secure prices from the refinery before quoting on important deals.

Tank Wagon Prices

There is no present talk of declines in the tank wagon prices in this territory. The thought now seems to be that there will be no changes until the increased demand and higher costs force a readjustment to the prevailing conditions in the spring. A decline now would be disastrous and with refinery prices advancing and consuming demand holding up well, there will be no necessity for any change to lower figures. The year has been a good one for the jobber. The only time when he did not have a good margin was for a few weeks in the early part of the season, when refinery prices were advanced much more rapidly than the tank wagon price. The declines in refinery prices, with advances in tank wagon markets quickly placed the margin at a good profit figure and it has remained there ever since.

LARGE PURCHASES BY UNION PETROLEUM CO.

In reply to a telegraphic request for the total volume of refined products bought by the Union Petroleum Co. in the Mid-Continent Field during the year 1922 The Oil and Gas Journal has received the following wire from Leland V. Stanford, vice president in charge of export sales and purchases:

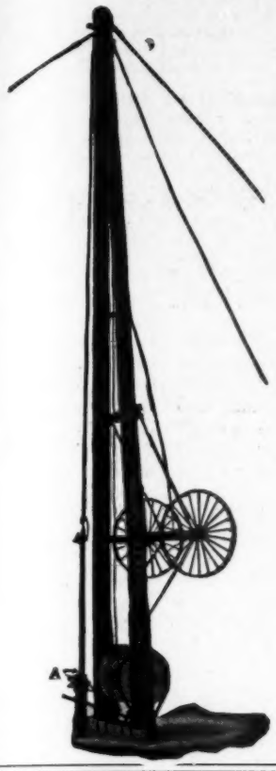
"Our purchases Mid-Continent refiners, 1922, show 16,500 cars of gasoline and 8,500 cars of kerosene. Our export business totaled 625,000 tons with total number of cargoes 135. We appreciate co-operation received from all refiners and by continuance this same co-operation hope to make 1923 a better and bigger year."

Figures given in Mr. Stanford's telegram do not include the heavy domestic purchases this company has made in the Mid-Continent area nor does it include the large quantities of wax which it has bought in the same area.

Since the withdrawal of the Standard of Indiana, the Union has been the chief factor in the Mid-Continent market and it was largely due to its heavy purchases that refiners of this territory were able to refine the great volume of crude they did in 1922.

The Safety Pulling Machine

Is the Safest, Strongest and Most Popular Pulling Machine on the Market



Mr. Producer: We wish to call your attention to the fact that we have at all times repair parts for our machines in stock.

Perhaps you wonder why we make this statement. We have in the past repaired reels and furnished different parts for several different makes of machines; we have furnished mast timbers to supply companies for an A-Mast machine that was sold by a certain supply company. Why is it necessary that they order mast timbers for machines that never saw the inside of our factory? Simply one of two things: They have either quit making them or they do not have the stock necessary to take care of their trade.

Some producer has purchased a machine that is like an European auto in this country—no available repairs, consequently no service.

Do not take something just as good, but demand the best, a machine that you will be able to get service from the factory, direct to the supply company.

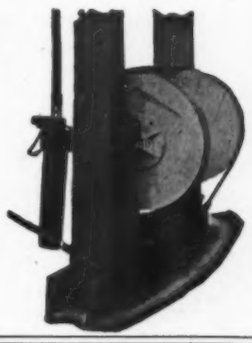
Tell your supply company that you want the Safety or Eclipse and they can get it for you. We have them to sell.

No supply company has any strings on our machines. The hustler gets the business.

The Oil Well Supply Co., National Supply Co., Jarecki Mfg. Co., Republic Supply Co. and Bovaird Supply Co. have adopted our machines as the standard for the oil field, and if you will insist on our products the rest of them will get in line.

Our Safety Pulling Machine on A-Mast, 36 feet, full-length timbers, semi-steel, safety-brake mechanism, extra broad gauge, attached truck, good for 2,000 feet. Our Safety Special, same as above, with extra heavy mast timbers, good for 3,000 feet.

We also manufacture the Eclipse Pulling Machine on A-Mast, 36 feet, full-length timbers, semi-steel reel, single brake, attached truck, extra broad gauge.

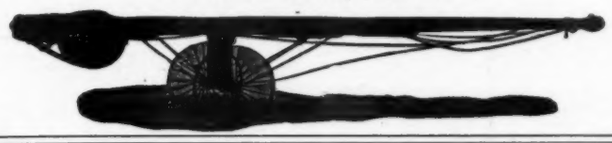


MANUFACTURED BY

THE SAFETY PULLING MACHINE CO.

DRAWER A

INDEPENDENCE, KANSAS



Some jobbers use straight-run, zero cold test, lubricating oils.

Others use high cold test paraffines, blended with cylinder stocks.

An increasing number of our customers, who have used both grades, report much better and more uniform results obtained from the use of the straight run oils.

We suggest you try them yourself and become convinced of their superiority.

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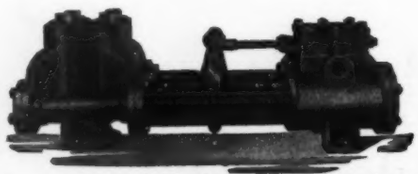
Built to Work Against High Pressures

Perhaps you have a condition calling for an unusually sturdy pump to work against pressures ranging from 500 to 800 pounds. Perhaps also the nature of the work—pumping gasoline, acids or the like—calls for a design with practically no gasket surface.

Naturally you want an **accessible** pump. The valve pots, for example, must be accessible from the outside. The suction valves must be designed to permit their removal without removing seats. It must be especially designed for oil field conditions.

If these are your conditions, the pump pictured below is just what you're looking for. It is the Gaso Duplex Piston Steam Pump No. 404, described with a complete line of other designs, in the 64-page Gaso catalog. Ask for your copy.



Gaso Pump No. 404—One of a Complete Series for Oil Field Use

GASO PUMP & BURNER MFG. CO.
TULSA, OKLAHOMA

GASO PUMPS for oil field uses

STATISTICS OF CRUDE PRODUCTION FOR NOV., 1922, AND PRECEDING MONTHS

(Preliminary data, subject to revision, based on reports received up to December 27)

During November, according to United States Geological Survey, daily average production of petroleum (amounting to 1,596,300 bbls.) increased 51,623 bbls.; daily average imports of crude and topped oil (amounting to 245,467 bbls.) increased 6,499 bbls.; daily average exports of crude oil (amounting to 28,533 bbls.) increased 4,630 bbls. and daily average consumption of crude petroleum (amounting to 1,781,433 bbls.) increased 74,078 bbls., net results being that stocks increased 954,000 bbls. This is the smallest addition to storage that has been recorded for any month since September, 1920.

PRODUCTION OF PETROLEUM BY STATES

The figures given below for the States east of California, compiled from reports made by pipe line and other companies to the United States Geological Survey, show the quantity of petroleum transported from producing properties during the months indicated. Petroleum consumed on the leases and produced but not transported from the producing properties is not included. Those items are given in the final annual statistics, which show gross production—all the oil brought to the surface. The figures for California prior to August, 1922, are the average of those reported by the Standard Oil Co. and by the Independent Oil Producers Agency and show estimated gross production. Figures for California since July are those reported by the Pacific Coast office of the American Petroleum Institute and are in part estimates.

(Barrels of 42 United States gallons)

State—	Oct., 1922* Total	Oct., 1922* Daily average	Nov., 1922 Total	Nov., 1922 Daily average	Nov., 1922* Total	Nov., 1922* Daily average
California	13,419,000	432,885	14,036,000	467,851	8,647,000	288,233
Oklahoma:						
Osage County	3,590,000	115,807	3,651,000	121,700	2,122,000	70,733
Remainder of State	9,057,000	292,147	8,790,000	293,015	7,306,000	243,534
Total Oklahoma	12,647,000	407,954	12,441,000	414,715	9,428,000	314,267
Texas:						
Central and Northern	6,162,000	198,774	5,790,000	193,000	5,977,000	199,233
Coastal	2,002,000	96,839	2,867,000	95,567	2,978,000	99,267
Total Texas	9,164,000	295,613	8,657,000	288,567	8,955,000	298,500
Wyoming:						
Salt Creek	1,920,000	61,936	2,489,000	82,967	1,052,000	35,067
Other districts	685,300	22,106	624,400	20,813	460,000	15,333
Total Wyoming	2,605,300	84,042	3,113,400	103,780	1,512,000	50,400
Louisiana:						
Northern	2,640,000	85,161	2,380,000	79,334	1,789,000	59,633
Coastal	144,000	4,645	148,000	4,933	131,000	4,367
Total Louisiana	2,784,000	89,806	2,528,000	84,267	1,920,000	64,000
Kansas	2,614,000	84,322	2,529,000	84,300	2,744,000	91,467
Arkansas	855,000	27,581	†980,000	32,667	1,278,000	42,600
Illinois	768,000	24,774	728,000	24,267	837,000	27,900
Kentucky	763,200	24,619	735,200	24,173	723,000	24,100
Pennsylvania	664,000	21,419	632,000	21,067	593,000	19,764
Ohio:						
Central and Eastern	414,000	13,355	392,000	13,067	409,000	13,634
Northwestern	177,000	5,710	160,000	5,333	157,000	5,233
Total Ohio	591,000	19,065	552,000	18,400	566,000	18,867
West Virginia	567,000	18,290	543,000	18,100	592,000	19,734
Montana	254,000	8,194	241,000	8,033	148,000	4,933
Indiana:						
Southwestern	74,000	2,387	72,000	2,400	70,000	2,334
Northeastern	21,000	677	18,000	600	16,000	533
Total Indiana	95,000	3,064	90,000	3,000	86,000	2,867
New York	85,000	2,742	85,000	2,833	68,000	2,267
Colorado	8,700	281	7,600	252	9,000	300
Tennessee	800	26	800	27	1,000	33
Total	47,885,000	1,544,677	47,889,000	1,596,300	38,107,000	1,270,234

*Revised. †Includes only petroleum marketed.

PRODUCTION OF PETROLEUM BY FIELDS

(Barrels)

Field—	Oct., 1922* Total	Oct., 1922* Daily average	Nov., 1922 Total	Nov., 1922 Daily average	Jan.-Nov. 1922	Jan.-Nov. 1921
Appalachian	2,494,000	80,451	2,378,000	79,267	26,871,000	27,940,000
Lima-Indiana	198,000	6,387	178,000	5,933	2,081,000	2,211,000
Illinois and Southwest Ind.	842,000	27,161	800,000	26,667	9,420,000	10,057,000
Mid-Continent	24,918,000	803,792	24,120,000	804,016	280,449,000	234,829,000
Gulf Coast	3,146,000	101,484	3,015,000	100,500	32,313,000	33,428,000
Rocky Mountain	2,868,000	92,517	3,362,000	112,066	26,040,000	18,838,000
California	13,419,000	432,885	14,036,000	467,851	124,244,000	102,696,000
Total	47,885,000	1,544,677	47,889,000	1,596,300	501,418,000	429,999,000

*Revised.

STOCKS

Stocks of crude petroleum are classified as follows:

Producers' stocks—petroleum held on the producing properties (lease storage).

Pipe line and tank farm stocks—petroleum that has been removed from the producing properties but not delivered to refineries or to other consumers and is held on tank farms, in tanks along pipe lines, and in the lines.

Refinery stocks and stocks held by other consumers—petroleum that has been delivered to refineries or to other consumers.

Pipe line and tank farm stocks constitute by far the greater part of the petroleum held in storage in the United States. For the States east of California such stocks are reported monthly to the Geological Survey as gross stocks, including the total contents of tanks and pipe lines, and as net stocks, which are gross stocks minus b.s. and water. Stocks for California, prior to August, 1922, are those published in the Standard Oil Bulletin; since July stocks for California are those published by the Pacific Coast office of the American Petroleum Institute and include producers', refinery, pipe line and tank farm stocks of crude, residuum and tops.

STOCKS OF PETROLEUM ON LAST DAY OF MONTH

(Barrels)

	Oct. 31, 1922*	Nov. 30, 1922	Nov. 30, 1921
A. Domestic petroleum—Source by fields—			
East of California—Pipe line and tank farm stocks:			
Appalachian:			
N. Y., Pa., W. Va., Eastern and Central Ohio:			
Gross	6,215,000	6,204,000	4,801,000
Net	5,950,000	5,943,000	4,536,000
Kentucky:			
Gross	3,019,000	3,071,000	2,064,000
Net	2,904,000	2,957,000	1,971,000
Lima-Indiana:			
Gross	931,000	912,000	1,501,000
Net	676,000	659,000	1,136,000
Illinois-Southwest Indiana:			
Gross	10,353,000	10,532,000	7,622,000
Net	9,852,000	10,031,000	7,122,000
Mid-Continent:			
Oklahoma, Kansas, Central and North Texas:			
Gross	148,410,000	147,602,000	99,293,000
Net	137,545,000	137,351,000	89,317,000

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To Jobbers: You can obtain lubricating oils from this company which will meet every requirement of your trade. The enviable reputation of **Sun Oils** insures satisfaction to your customers. Exclusive features, such as red oils, which combine exceptionally low cold tests with high viscosities, give you unusual sales advantage.

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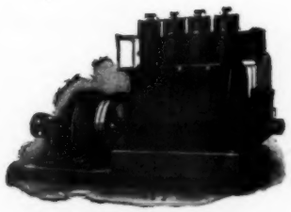
Atlanta	Battle Creek	Buffalo	Cleveland	Detroit	Indianapolis	Los Angeles	Newark	Pittsburgh	Toledo	Yale



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No gears,
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Low fuel oil consumption,
Burns any oil that flows,
Symmetrical cylinder heads and flat top pistons,
No valves to grind, except small check valves,
Two-part cylinder head, preventing heat expansion stresses,
A Diesel engine with typical slow graduated non-explosive combustion.

No Hot Spot— Thoroughly Water Jacketed

The cylinder, cylinder head and combustion chamber of the Worthington **Diesel Engine,** two-cycle—solid injection type, is water jacketed. There are no hot spots. The jackets are the kind that can be easily cleaned when scale forms on the walls or when mud deposits from bad water. The cylinder head jackets are fully exposed when the two parts of the head are separated for inspection.

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Bolted Steel Tank

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Accurately manufactured of Rust Resisting Keystone Copper Steel, the Maloney is adaptable to all weather and climates. It gives the maximum service at the minimum cost. It meets all the requirements of tight deck construction to conserve evaporation. They are durable and dependable.

Eight 1,000-bbl. Maloney Tanks in foreground and nine in the background in the Mexia (Tex.) Field

Decks have tight manhole with packed joints—also flanges for gauging and inlet purposes—the same construction throughout the deck as balance of tank. Cleaning-out plate in the side flush with bottom—easily removed—tank cleaned—plate replaced without getting inside of tank—one-man job and no risk from gases. Specify Maloney Rust-Resisting Copper Steel Tanks.

Made of KEYSTONE COPPER STEEL

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Modernly equipped Export Department gives prompt and dependable service. Tanks knocked down, securely packed in steel pound crates, easily handled at port.

North Louisiana and Arkansas:			
Gross	15,897,000	15,909,000	9,963,000
Net	15,266,000	15,279,000	9,493,000
Gulf Coast:			
Gross	26,800,000	27,027,000	18,795,000
Net	25,071,000	25,431,000	17,422,000
Rocky Mountain:			
Gross	1,630,000	1,488,000	1,374,000
Net	1,630,000	1,475,000	1,360,000
Total pipe line and tank farm stocks east of California:			
Gross	213,255,000	212,745,000	145,413,000
Net	198,884,000	199,026,000	132,257,000
California	57,570,000	59,755,000	33,486,000
B. Mexican petroleum held in the United States by importers:			
At Atlantic Coast stations:			
Crude	6,276,000	6,113,000	5,561,000
Topped oil topped in Mexico	2,639,000	2,508,000	1,896,000
At Gulf Coast stations:			
Crude	7,759,000	6,990,000	3,523,000
Topped oil topped in Mexico	1,774,000	1,464,000	1,437,000
Total Mexican	18,448,000	17,075,000	12,417,000
Total domestic net pipe line, tank farm stocks east of California, California stocks as defined above, and stocks of Mexican petroleum held in the United States by importers	274,902,000	275,856,000	178,260,000
Number of days' supply	161	155	118

*Revised.

IMPORTS AND EXPORTS OF "MINERAL CRUDE OIL"*

(Barrels)

	Sept., 1922 Total	Sept., 1922 Daily average	Oct., 1922† Total	Oct., 1922† Daily average	Nov., 1922 Total	Nov., 1922 Daily average
Imports into United States:						
‡From Mexico:						
Crude oil:						
Light (more than 16°)	2,683,000	89,433	2,793,000	90,097	2,261,000	75,367
Heavy (more than 16°)	1,863,000	62,100	2,310,000	74,516	2,828,000	94,267
Topped in Mexico	1,778,000	59,267	2,305,000	74,355	2,275,000	75,833
‡From other countries	**138,000	4,600	z	z	z	z
Total	6,462,000	215,400	7,408,000	238,968	7,364,000	245,467
‡Exports:						
Domestic crude oil:						
To Canada	931,000	31,033	712,000	23,000	.....	.....
To other countries	174,000	5,800	1,000	32	.....	.....
Foreign crude oil	22,000	733	27,000	871	z	z
Total	1,127,000	37,566	741,000	23,903	856,000	28,533

*Includes topped oil topped in Mexico. †Revised. ‡Compiled from reports of importers to United States Geological Survey, preliminary figures pending complete separation of imports of crude oil and refined products by Bureau of Foreign and Domestic Commerce. §Compiled from records of Bureau of Foreign and Domestic Commerce. **Figures cover period from September 1 to 21. zNot available.

ESTIMATED CONSUMPTION (DELIVERIES TO CONSUMERS OF DOMESTIC AND IMPORTED CRUDE PETROLEUM

(Barrels)

	Sept., 1922 Total	Sept., 1922 Daily average	Oct., 1922* Total	Oct., 1922* Daily average	Nov., 1922 Total	Nov., 1922 Daily average
Domestic petroleum:						
(Source of oil by fields)						
Appalachian	2,306,000	76,866	2,318,000	74,774	2,332,000	77,733
Lima-Indiana	319,000	10,633	250,000	8,065	195,000	6,500
Illinois and Southwest Ind.	761,000	25,367	989,000	31,903	621,000	20,700
Mid-Continent	23,043,000	768,100	24,228,000	781,548	24,401,000	813,367
Gulf Coast	2,346,000	78,200	2,229,000	71,903	2,655,000	88,500
Rocky Mountain	2,484,000	82,800	3,076,000	99,226	3,507,000	116,900
California	10,218,000	340,600	12,108,000	390,581	11,851,000	395,033
†Consumption and exports	41,477,000	1,382,566	45,198,000	1,458,000	45,562,000	1,518,733
Exports of domestic crude oil	1,105,000	36,833	714,000	23,032	856,000	28,533
Consumption in the United States and territories	40,372,000	1,345,733	44,484,000	1,434,968	44,706,000	1,490,200
Imported petroleum:						
‡Consumption in the United States and territories	8,877,000	295,900	8,444,000	272,387	8,737,000	291,233
Consumption of domestic and imported petroleum in United States and territories	49,249,000	1,641,633	52,928,000	1,707,355	53,443,000	1,781,433

*Revised. †Production plus domestic stocks at beginning of month minus domestic stocks at end of month. ‡Imports of "mineral crude oil" minus exports of foreign crude oil plus decrease or minus increase of stocks of Mexican petroleum held in the United States by importers.

NUMBER OF PRODUCING OIL WELLS COMPLETED DURING MONTH*

September, 1922	October, 1922	November, 1922	November, 1921
1,572	1,388	1,450	899

*For States east of California, from Oil City Derrick; for California, from the American Petroleum Institute.

REDUCE TANK WAGON QUOTATIONS IN TEXAS

HOUSTON, Tex., Jan. 2.—A reduction of 2 cents on gasoline was announced in Texas territory, December 28, by the Gulf Refining Co., The Texas Co., and Humble Oil & Refining Co., making the price 19 cents at filling stations. A 3-cent differential makes the quotation to dealers 16 cents. Kerosene was reduced from 13 to 11 cents at the time. Marketers say the decline is in line with reductions in other parts of the country. The Gulf started the cut and others fell into line at once.

Refiners report a better demand for 750 viscosity lube from Gulf Coast crude and also for gas oil.

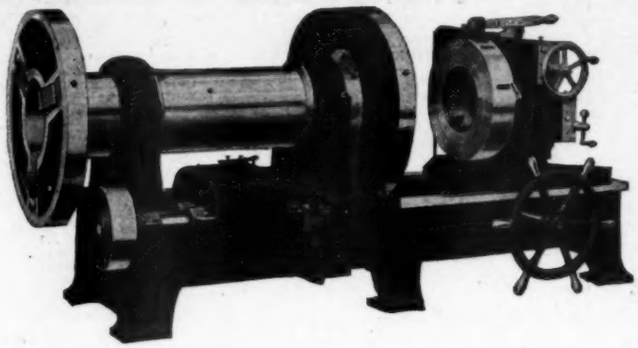
The German tanker Ostreprussen left the Baytown plant of the Humble Oil & Refining Co. with a cargo of 20,000 bbls. of lube distillate and gas oil for Germany during the week. The tanker Franklin loaded a cargo of 30,000 bbls. of lubricating for north Atlantic ports from the refinery of the Galena-Signal Oil Co. of Texas. The Deepwater Refining Co. will load gas oil during the week and the Sinclair plant will send out two tankers with gas oil and lube distillates for north Atlantic ports.

The steamer Salvation Lass included 50 bbls. of lubricating for Barcelona and 25 bbls. for Valencia in its cargo from Galveston during the week.

JAMES E. TODD DIES

SHREVEPORT, La., Jan. 1.—James Edward Todd, aged 42, superintendent of the production department and a director of the Standard Oil Co. of Louisiana, died December 24, following a protracted illness. Funeral services were held at the Scottish Rite Cathedral, in charge of the Joppa Lodge of Masons.

Mr. Todd began his career as an oil operator 22 years ago, at Corsicana, Tex. He came to Louisiana in 1908 and had been in the employ of the Standard Oil Co. for 15 years. He was born at Batchtown, Ill., and is survived by his widow and two little daughters, and one brother, W. O. Todd, of California.



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When a B & K pipe machine is installed you can cut off, ream and thread pipe, and that's what you are looking for.

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The Darling Valve & Manufacturing Company has been manufacturing valves for the Oil Industry for years. During all this time we have constantly improved our valves and our service, consequently we enjoy a good patronage from every oil field in the United States.

Ask any user of our valves or write us for descriptive literature

DARLING VALVE & MANUFACTURING CO.

WILLIAMSPORT, PA., U. S. A.

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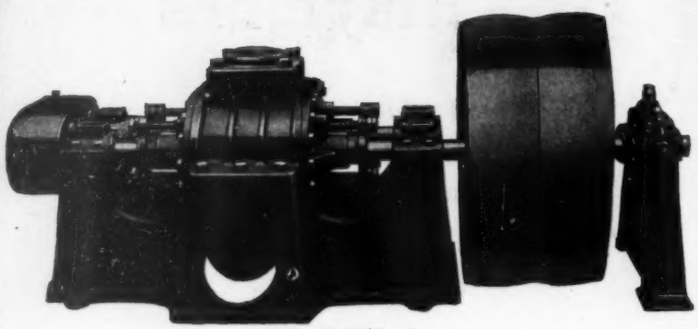

Fig. 2779 No. 6

Dependable Pumps

for the oil man

There are TRAHERN Pumps for the lightest or heaviest oils, for high pressures and low pressures, and with large or small capacity. Whether for refiner or oil jobber, for loading or unloading the largest tank car or filling or emptying the smallest wood barrel or steel drum, there is a TRAHERN Pump for that service.

TRAHERN Pumps are all of extremely heavy construction and are practically indestructible. They are built to withstand severe punishment under most exacting conditions. Pumps all operate at low speed, 200 R. P. M. being the average, which means extremely long life for the units. There are only two working parts in the accurately machined pump case, practically eliminating friction, taking less horsepower to operate, giving greater capacity, and making an extremely efficient pump.

Single pumps like the above on some installations have capacities of approximately 175 gallons per minute. At smaller capacities the pump will operate against pressures up to 250 lbs.

TRAHERN Pumps can be had in single, double or triple outfits, for belt, motor or engine drive and can be furnished with either friction clutches or sliding gears.

If you need a pump we'll wager there is a TRAHERN made to meet the need. Write us and see what we have to offer, before buying your next lot of pumps.

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OKLAHOMA-KANSAS AND EASTERN PIPE LINE REPORT FOR NOVEMBER

PIPE LINE STATEMENT FOR NOVEMBER

Oklahoma and Kansas

Runs

Company—	Month	Daily Av.
*Prairie Pipe Line Co	4,170,000	139,000
Gulf Pipe Line Co	1,060,558	35,351
Texas Pipe Line Co	483,034	16,101
Magnolia Pipe Line Co	798,737	26,624
Empire Pipe Line Co	805,452	26,848
Cosden Pipe Line Co	1,059,873	35,329
*Sinclair Pipe Line Co	1,385,000	46,167
*Miscellaneous	5,070,000	169,000
Total, November	14,832,654	494,420
Total, October	14,918,555	495,753
Difference	85,901	1,333

Shipments

Prairie Pipe Line Co	†5,573,757	185,792
Gulf Pipe Line Co	888,149	29,605
Texas Pipe Line Co	809,230	26,974
Magnolia Pipe Line Co	569,414	18,980
Empire Pipe Line Co	736,617	24,554
Cosden Pipe Line Co	1,011,045	33,702
Sinclair Pipe Line Co	†1,066,783	35,559
*Miscellaneous	4,380,000	146,000
Total, November	15,034,995	501,166
Total, October	15,648,058	494,902
Difference	613,063	6,264

Stocks

*Prairie Oil and Gas Co	22,000,000
*Prairie Pipe Line Co	1,500,000
Gulf Pipe Line Co. & Gypsy Oil Co.	5,705,597
Texas Co. and Texas P. L. Co	6,596,292
Magnolia Petroleum Co	6,714,546
Carter Oil Co	16,440,000
Empire Pipe Line Co	2,036,214
Cosden Pipe Line Co	1,554,384
*Sinclair Crude Oil Purchasing Co.	22,183,330
*Miscellaneous	3,000,000
Total, November	87,830,033
Total, October	87,923,000
Difference	92,967

*Estimated. †Includes shipments of Texas crude.

Note—Stocks do not include approximately 4,975,000 bbls. held in storage on private tank farms and leases.

EASTERN PIPE LINES

Runs From Wells

In the following table will be found the regular receipts from wells by various pipe lines in New York, Pennsylvania, West Virginia, Ohio, Kentucky and Indiana for October and November:

	Oct., 1922	Nov., 1922
National Transit	233,575.04	213,560.31
S. W. Pa. P. L.	96,225.47	89,853.71
Eureka Pipe Line	421,645.63	404,747.00
Buckeye Pipe Line (Macksburg)	279,633.17	265,941.76
Buckeye Pipe Line (Cleveland)	26,265.03	22,370.64
Buckeye Pipe Line (Lima, etc.)	114,250.13	102,792.21
Indiana P. L.	18,790.34	15,094.29
Cumberland P. L.	372,325.72	365,209.58
N. Y. Transit	14,193.62	14,700.82
Tide Water P. L.	152,904.94	150,184.07
Pure Oil P. L.	192,329.82	181,082.09
Emery P. L.	36,156.34	34,885.75
Paragon Ref.	35,433.25	30,655.18
Indian Ref.	385,824.92	357,312.73
Swiss P. L.	1,935.66	997.23
Pittsburgh P. L.	11,483.04	9,998.02
Total	2,393,472.12	2,259,385.39
Daily average	77,208.77	75,312.84

[illegible] Refining Co. had other receipts of 118,245.67 bbls., Paragon Refining Co. had other receipts of 133,-255.84 bbls. Pittsburgh Pipe Line Co. had other receipts of 2,242.03 bbls.

Petroleum Deliveries

The following table exhibits the shipments or regular deliveries of various pipe lines in New York, Pennsylvania, West Virginia, Ohio, Kentucky and Indiana for October and November:

	Oct., 1922	Nov., 1922
National Transit	541,867.56	488,240.63
S. W. Pa. P. L.	268,683.67	265,262.89
Eureka P. L.	110,997.40	128,069.98
Buckeye Pipe Line (Macksburg)	72,713.40	75,362.54
Buckeye Pipe Line (Cleveland)	1,391.77	1,550.95
Buckeye Pipe Line (Lima, etc.)	938,743.75	956,102.19
Indiana P. L.	930,658.45	948,970.85
Cumberland P. L.	123,038.99	119,957.53
Southern P. L.	126,179.53	126,857.17
Crescent P. L.	150,512.18	153,195.66
N. Y. Transit	665,826.82	567,133.97
Northern P. L.	87,567.86	124,480.91
Tide Water P. L.	186,761.58	131,741.91
Pure Oil P. L.	161,865.48	188,044.50
Emery P. L.	34,310.30	34,160.63
Paragon Ref.	172,873.05	154,226.01
Indian Ref.	535,261.41	491,897.31
Swiss P. L.	3,241.75	2,434.98
Pittsburgh P. L.	13,211.08	12,619.02
Total	5,125,696.43	4,970,310.08
Daily average	165,696.43	165,677.00

Gross Stocks

The gross stocks held by various pipe lines in the oil producing section of New York, Pennsylvania, West Virginia, Ohio, Indiana and Kentucky at the close of October and November are as follows:

	Oct., 1922	Nov., 1922
National Transit	1,036,346.88	1,025,332.11
S. W. Pa. P. L.	763,997.84	851,135.42
Eureka P. L.	2,118,779.73	2,100,498.51
Buckeye Pipe Line (Macksburg)	632,963.66	632,676.67
Buckeye Pipe Line (Cleveland)	35,491.90	22,900.58
Buckeye Pipe Line (Lima, etc.)	5,313,807.71	4,722,122.86
Indiana P. L.	628,282.92	571,241.17
Cumberland P. L.	568,564.18	538,753.75
Southern P. L.	892,384.28	908,619.86
Crescent P. L.	96,609.11	99,264.80
N. Y. Transit	2,183,461.83	2,148,060.81
Northern P. L.	822,098.61	901,442.59
Pure Oil P. L.	326,168.86	315,106.35
Emery P. L.	6,126.91	4,881.77
Paragon Ref.	157,658.47	171,371.69
Indian Ref.	157,007.27	141,984.27
Swiss P. L. Co.	5,626.54	8,088.79
Pittsburgh P. L.	7,869.29	7,490.32
Total	15,757,746.02	15,171,972.32
Decrease	470,799.85	585,773.70

Grades of Oil

The following tables shows the amount of the different grades of oil held by the Eastern pipe lines at the close of September and October, showing the gross stocks of the above fields:

	Oct., 1922	Nov., 1922
Pennsylvania	2,607,421.34	3,545,515.55
Lima	756,020.39	699,151.64
Kentucky	1,915,509.90	1,960,662.35
Mid-Continent	9,356,334.01	8,821,771.27
Illinois	122,460.33	94,871.61
Total	15,757,746.02	15,171,972.32

Daily Average Runs

The following table shows the daily average runs of the Pennsylvania, Lima and Kentucky oil fields for the past four years:

	1919	1920	1921	1922
January	66,775	56,004	64,460	67,702
February	60,581	68,699	70,054	75,096
March	67,473	67,745	68,555	78,531
April	72,851	64,589	65,036	75,462
May	70,047	63,937	65,466	77,592
June	74,823	68,750	62,438	76,193
July	71,711	66,489	59,486	76,435
August	65,370	63,861	64,888	79,387
September	68,649	68,102	60,110	78,512
October	67,625	65,046	57,688	77,209
November	60,131	62,758	58,470	75,313
December	64,123	60,750	61,090	.....

Daily Average Shipments

The following table gives daily average shipments from the Pennsylvania, Lima and other fields for the past four years:

	1919	1920	1921	1922
January	100,241	98,835	115,550	119,792
February	103,432	107,146	96,736	111,362
March	114,748	110,777	84,168	127,753
April	112,327	114,090	101,015	127,068
May	117,508	110,219	100,253	127,840
June	104,185	102,598	105,037	137,638
July	125,074	112,340	97,096	137,872
August	124,352	122,296	101,652	153,275
September	118,772	127,131	117,440	158,761
October	134,829	129,881	105,738	165,345
November	138,576	117,730	121,803	165,677
December	124,183	117,201	104,925	.....

Gross Stocks

In the following table will be found the gross stocks of the various lines of the Pennsylvania, Lima and Kentucky oil fields, including oil received from other lines, at the close of each month for the past three years:

	1920	1921	1922
January	8,172,639	7,916,353	16,297,858
February	8,186,983	8,721,878	17,009,293
March	8,678,899	9,818,766	16,877,937
April	8,032,578	10,369,941	16,777,842
May	8,391,646	11,224,694	16,948,962
June	8,013,874	12,328,126	16,810,159
July	8,138,687	13,798,698	16,669,286
August	8,249,230	15,155,633	16,235,229
September	8,180,977	15,525,750	16,228,545
October	7,925,059	15,761,079	15,757,746
November	7,760,060	14,971,071	15,174,972
December	7,864,207	15,804,741	.....

Franklin Pipe Line Co.

The following table exhibits the condition of the Franklin Pipe Line at the close of business for the months named and not counted in the stocks and averages reported above:

1921—	Receipts	Shipments	Stocks
November	2,987.08	5,091.15	13,075.69
December	3,066.89	501.42	15,641.16
1922—			
January	2,389.82	33.62	17,997.36
February	2,873.48	700.17	20,170.67
March	3,101.87	2,262.24	21,010.30
April	3,494.48	3,037.62	21,467.16
May	3,100.68	2,412.95	22,154.89
June	3,554.83	759.81	24,949.91
July	3,044.26	2,638.75	25,355.42
August	3,190.47	1,196.98	27,348.91
September	3,382.56	3.31	30,728.16
October	3,368.58	4,783.61	29,313.13
November	3,052.75	2,230.18	30,135.70

The Illinois Field

The following table gives the report of the Illinois Pipe Line Co. in Illinois:

Gross stocks, Dec. 1	2,473,363.99
Runs from wells	535,054.41
Other receipts	421,966.20
Regular deliveries	296,170.48
Other deliveries	339,946.20

[illegible] Illinois oil run by the [illegible] Water Pipe Line Co. in November was 31,-453.62 bbls., and deliveries were 138,511.49 bbls. Among these figures is those of the Illinois Pipe Line Co. makes the runs and deliveries from the Illinois Field as follows:

1921—	Runs	Deliveries
November	598,449.53	229,992.87
December	599,776.54	199,767.01
1922—		
January	574,553.30	254,255.46
February	624,951.42	204,800.79
March	666,056.93	203,163.01
April	519,793.89	195,739.14
May	655,541.93	347,445.42
June	633,448.20	441,541.49
July	620,079.29	262,294.98
August	648,827.26	370,461.56
September	595,603.99	407,333.79
October	618,469.82	454,005.38
November	566,508.03	434,681.37

The Tide Water Pipe Co., Ltd., also delivered in November, 174,524.89 bbls. of Oklahoma oil, and 16,000 bbls. of Texas oil. The total deliveries of all grades by the Tide Water were 459,778.29 bbls.

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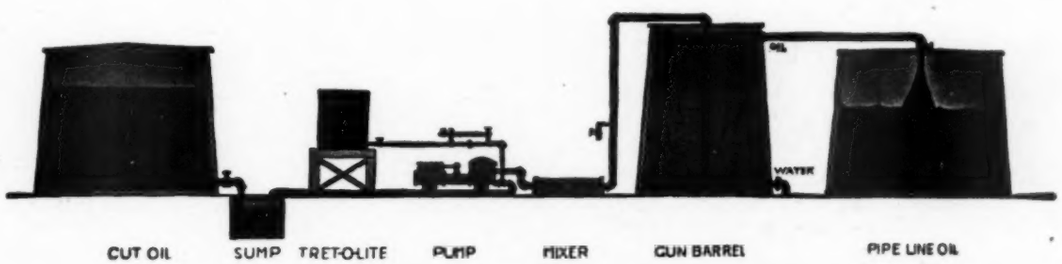

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The purchaser of Tret-O-litE is licensed to practice the Barnickel patented processes to the extent permitted by the quantity of Tret-O-litE purchased He is not licensed to use any other chemical covered by the Barnickel patents either alone or with Tret-O-litE

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LET US FIGURE YOUR REQUIREMENTS

Summary of Statements Made December 10, 1922, Relating to Business of Various Pipe Lines for Month Ending November 20, 1922

	Gross Stocks	Runs From Wells	Other Receipts	Regular Deliveries	Other Deliveries
National Transit	1,026,332.11	213,560.31	1,216,677.38	488,240.63	947,342.02
S. W. Pa. P. L.	851,135.42	89,853.71	1,074,718.02	365,262.89	798,658.78
Eureka P. L.	2,190,498.51	404,747.00	866,307.66	128,069.93	1,153,412.73
Buckeye P. L. (Macksburg)	632,676.67	265,941.76	828.50	75,362.54	188,050.27
Buckeye P. L. (Lima, etc.)	4,723,132.86	103,792.21	2,367,799.50	956,102.19	2,061,820.36
Buckeye P. L. (Cleveland)	22,900.58	22,370.64	.....	1,550.95	33,428.06
Indiana P. L.	571,241.17	15,094.29	2,255,003.86	948,970.85	1,373,494.51
Cumberland P. L.	538,763.75	365,209.58	222.29	119,957.53	264,308.27
Southern P. L.	908,619.86	.....	837,318.88	126,867.17	686,808.05
Crescent P. L.	99,264.80	.....	155,820.68	153,196.66	.....
N. Y. Transit	2,148,060.81	14,700.82	1,077,251.90	567,133.97	643,514.75
Northern P. L.	901,442.59	.....	1,507,192.49	124,480.91	1,297,769.94
Total, November 20	14,523,049.13	1,494,270.32	11,358,641.17	3,955,185.22	9,348,697.74
Total, October 31	15,093,388.68	1,576,904.15	11,004,351.79	4,018,181.78	8,904,683.14
Difference	570,339.55	82,633.83	354,289.38	62,996.56	443,924.60

OIL PRODUCTION IN THE U. S. IN 1922

It Is Estimated That 550,000,000 Barrels of Crude was Produced, Which Breaks All Records. Two Months' Supply of Gasoline in Storage. Present Year's Consumption is Expected to Result in Drawing on Stocks of Crude.

By CHARLES E. KERN

WASHINGTON, D. C., Jan. 3.—More crude oil was produced in the United States in 1922 than in any year since oil was discovered, says J. A. Phelan, statistical oil expert of the United States Shipping Board, in a report made to the board.

Mr. Phelan adds that more oil was in storage at the close of the year than at any other time, the amount being 280,000,000 bbls.

The production in December, 1922, was the heaviest ever known and the first month of 1923 will show an increase over January, 1922, of at least 7,000,000 bbls.

Gasoline storage at the beginning of 1923 was approximately 900,000,000 gallons, or a two months' supply, and with the storage now on hand and certain of production, no gasoline shortage can be looked for in the next two years.

Notwithstanding, it is not improbable that there will be a great fluctuation in the price of gasoline during the year, for the figures show that while there is an excess of approximately 300,000,000 bbls. of crude oil and distillate in storage, there will be much confusion in the oil market in order to meet the continued demand.

It is estimated that in the year 1923 more than 6,000,000,000 gallons of gasoline produced in the United States will be needed to meet requirements.

"The United States produced an unprecedented amount of crude petroleum in the year 1922, the output being 550,000,000 bbls.," Mr. Phelan says in his report. "This is 81,000,000 bbls., or 17 per cent more than was produced in 1921."

The year just closed shows the greatest gain of oil production in the United States since oil was first discovered, in 1859.

More oil was produced in 1922 than during the 10-year period from 1890 to 1900, and 62 per cent more than was produced in the year 1918, the most active year of the great World War.

"In 1922 the United States produced more oil than the entire world produced in 1919, and with the tremendous increase in production during the closing three months of 1922 in the United States, and the corresponding falling off in Mexico, it is apparent that the year 1923 will even show a better record in the way of production than 1922.

"The record shows that from 1920 down to and including November, 1922, the production of oil in the United States, with the imports added, exceeded the consumption, and this continued excess resulted in more than a 300,000,000-bbl. storage of crude oil and its distillates.

"The production and consumption curves have been practically running side by side for the past 60 days, and if Mexico should continue to decline in production, consumption of oil in the United States is certain to pass production in 1923, even if California, Arkansas and Oklahoma continue to show material increases, which is hardly probable."

INCREASE CAPITAL STOCK

HOUSTON, Tex., Dec. 30.—Charter amendments have been filed at Austin by the Republic Production Co., increasing its capital stock from $1,500,000 to $3,000,000 and by the American Petroleum Co., increasing its capitalization from $1,500,000 to $3,000,000. These are ssubsidiaries of the Republics Corporation, a J. S. Cullinan interest, having a controlling interest in these two corporations and ownership of the second preferred shares of the Galena-Signal Oil Co.

The Yount-Lee Oil Co., operating in the Sour Lake and Hull Pools, has increased its capital stock from $500,000 to $2,000,000.

OIL INDUSTRY TRAINING PLANNED FOR UNIVERSITY

SHREVEPORT, La., Jan. 1.—If present plans of the Mid-Continent Oil & Gas Association are carried out, a course of intensive training for the oil industry will be installed at the Louisiana State University. It has been arranged for a course of lectures to be given at the university by Harvey B. Howe, instructor of geology, on technical points connected with oil field development.

In discussing the aim of the association, J. B. Elam, secretary, said:

"The need of technical training among oil workers is very important. At present, very few drillers know anything about geology and other technical points. By giving special training along the technical lines and later practical experience, we can make efficient combination men. We are planning to give employment to all those who complete training."

TEXAS PACIFIC WILL HAVE PIPE LINE AND REFINERY

OKLAHOMA CITY, Okla., Jan. 1.—The Texas & Pacific Coal & Oil Co. has definitely decided to lay a pipe line from the Robberson Field, in Garvin County, to Wynnewood and install a skimming plant at Wynnewood, according to Henry M. Carr, lawyer and oil man of Pauls Valley. Wynnewood was selected in preference to Pauls Valley, Mr. Carr said, because of its being nearer the oil pool, the advantage of gravity in transporting the oil and a bonus of $100,000 offered by Wynnewood.

"Pauls Valley business men did not believe that the plant would be worth $100,000 to the town," said Mr. Carr. "Of course, they may have been mistaken, for the pipe line might prove of great advantage."

K.

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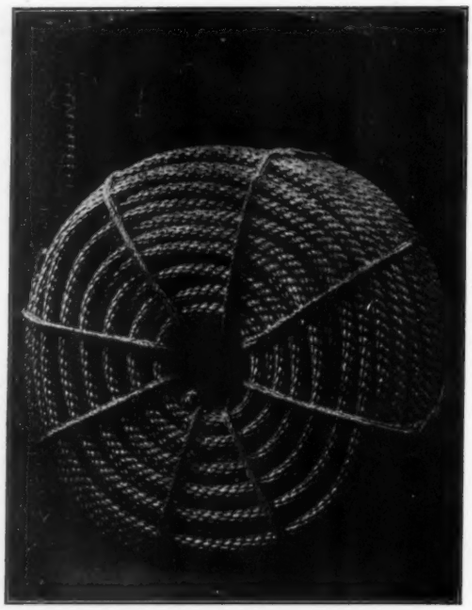

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Petroleum Equipment Activities

SUPPLY BUSINESS SHOWS LARGE GAIN DURING PAST YEAR

Compared to the previous year, the supply business of the oil industry has no basis for complaint for the year which has just closed. Figures for the year from representative supply concerns operating in the Mid-Continent section, show that the total volume of business for the past 12 months was from 25 to 75 per cent greater than during the previous year. According to heads of the leading supply companies, the status of the business in the Mid-Continent district can generally be taken as a barometer for conditions everywhere, within the industry except for certain fields of the East.

In spite of the large increase over the previous year, the totals in most cases are, however, under the years 1920 and 1919, which were boom periods for all branches of the oil industry. The year 1921 was one of the dullest of the past 10 years, and, in making comparisons, this fact must be kept in mind. Further during that period there was a downward adjustment of prices and this directly affected the volume of business ordinarily figured in dollars.

Year Was Satisfactory

But regardless of comparative figures, the supply industry has reason to be well satisfied with the year's business. A comparison by months from some of the major supply concerns shows a striking similarity for the year's business. The last two months of 1921 showed a slight improvement from what had been a several months' period of extreme dullness. This volume of business held its own or showed a small increase for the first quarter of 1922. Beginning in April, the demand for supplies showed a distinct increase which continued until July when the peak period of the year was reached. A decline started the first of August, directly due to the fact that beginning the middle of July, reductions were made in prices of crude affecting a majority of the fields in the United States.

The decline, which never reached the low point expected when crude was reduced, continued through August and September. There were no further declines in October and November with December showing a largely seasonable falling off in demand for supplies.

This condition for the year, of course, applies only to standard supplies and equipment, which, however, constitute the bulk of the business. Manufacturers of special equipment in many instances report exceptionally heavy sales for the year. The most encouraging feature of the year was the fact that the demand for supplies did not decline as in the previous year, when crude was reduced to a low figure. When the decline came many feared that the slump of the previous year would be again experienced with the accompanying losses. During the year the industry was compelled to cope with a condition brought about by rail and coal strikes. The strike reduced the output of the eastern mills and slow rail movement resulted in delays and depleted stocks in supplies for which there was the greatest demand. This condition, due to the settlement of the strikes, showed improvement during the last two months of the year although it is not as yet normal.

Few Price Changes

There were fewer changes in prices during the past year than during any other 12 months' period for several years. Before the opening of the year, numerous changes were made incident to an adjustment period and previous to that time prices had been increasing due to conditions brought about by the war. The most important change of the year was made in the early fall when increases were made in steel goods which averaged around 15 per cent. These followed substantial increase in the general steel market. A few other lines of material have also been increased.

In the Mid-Continent section, according to heads of the supply business, the most important event of the year was the decision of the major purchasing companies to buy crude oil on a gravity basis rather than a flat price for each field. The supply trade generally is convinced that this method of buying crude will tend to stabilize its business and that in the future it will not be compelled to undergo the usual ups and downs which follow closely sudden changes in the crude market. The experience of other fields where the gravity basis of purchasing crude has been in effect tends to substantiate this belief.

During the year progress has been made in the standardization program, which has been discussed and advocated by some from the birth of the industry. Under the sponsorship of the Mid-Continent Oil & Gas Association and other organizations, representatives of the supply trade, the manufacturers and the consumers were brought together and specifications largely tentative were agreed upon with final ratification to come later. The matter of standardization received serious consideration at the December meeting of the American Petroleum Institute and it is now apparent that more will be heard of this movement during the coming year with a probability that certain materials and equipment will be placed on the market which conform to standard specifications.

Prospects for the coming year are exceptionally bright according to the opinion of those who have an intimate knowledge of the supply business. The crude market is favorable with increases expected, although quotations are below the average of last year for the same date. Rail service is improving and will probably reach a normal state in so far as the supply industry is concerned in the near future.

PIONEER TANK & BOILER CO.

The Tulsa Boiler & Sheet Iron Works announces a change in the name of the business, which will henceforth be operated under the name of the Pioneer Tank & Boiler Co. The change is in name only, the personnel of the organization remaining as before. The change was made to avoid a continuance of the confusion with other tank concerns operating under names similar to the Tulsa Boiler & Sheet Iron Works. The plant was established in Tulsa 18 years ago and is said to have been the first to manufacture and specialize on refinery tankage.

TO BUILD REFINERY

HOUSTON, Tex., Jan. 1.—O. W. Killiam and associates, who opened the Mirando Field in Zapata County, Texas, and the Schott Field in Webb County, are planning a 1,000-bbl. refinery at Mirando City. They are interested in the Tex-Pata pipe line connecting the Mirando Field with Mirando City, a distance of 14 miles. Mr. Killiam is president of the pipe line company and general manager of the Mirando Oil Co., Schott Oil Co., Killiam-Condren Oil Co., and Nuevo Oil Co., all operating in the Webb-Zapata County districts.

VOGT BROTHERS

PETROLEUM

BRUIN, PA.
Oct. 7, 1922.

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Akron, Ohio.

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We have had our Star No. 38-ST Super-tractor in use about six months and are glad to say that it has given satisfaction in every way.

All of our work has been cleaning out oil wells, except two Speechley gas wells which were over 2300 feet deep, and we can say that the machine did the work nicely and in record time.

We have tested the Super-tractor attachment in moving up mountains, over creeks and up stony hills, and find it will climb any hill or mountain in this vicinity.

We are very well satisfied with the results the No. 38-ST Super-tractor has given us, and you can feel safe in recommending it to anyone who needs a machine for this class of work.

Yours truly,
Vogt Brothers
Per C. J. Vogt,

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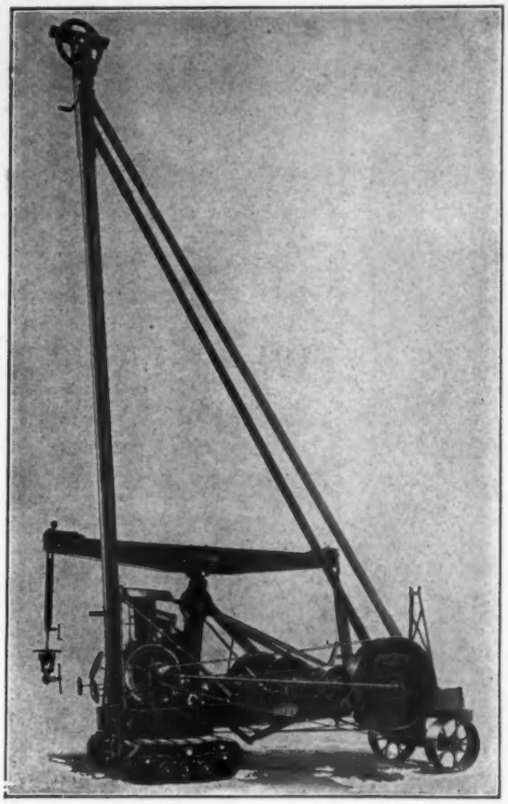

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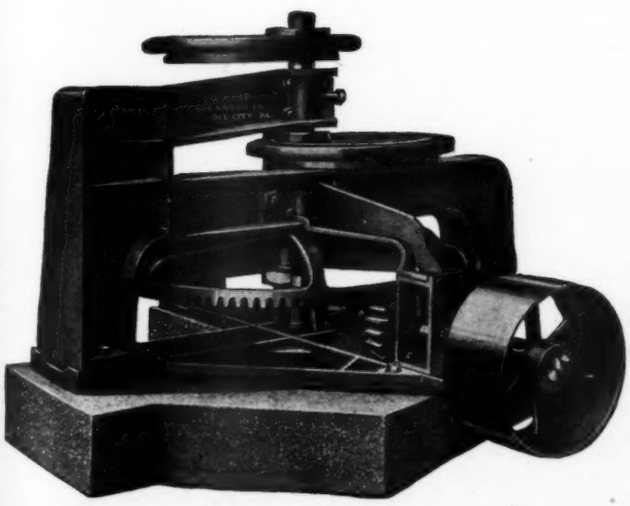

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JOSEPH REID GAS ENGINE COMPANY, Oil City, Pennsylvania, U.S.A.

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BRANCH SHOP: TULSA, OKLAHOMA

Where a Reed Reversing Tool Registered Complete

SUCCESS!

Words cannot equal the force of a photograph. The truth could not be better told than the above picture, which evidences a performance of the Reed Reversing Tool, just recently placed on the market.

Pictures of pipes shows one 6-inch wrapped around a 4-inch; the latter being the piece recovered.

In the driller's statement, he writes:

"I recovered a oint of 4-inch, with a formation socket made of 6¼-inch casing which I don't believe any string of left-hand pipe would have turned in, for I used two spokes of steam and the tool is geared twelve to one, so you can see it was a very severe test for it."

On another occasion, a driller stated his experience as follows:

"The reversing tool recovered a string of tubing, at one time getting 26 joints, and at no time did they fail to get one or more joints."

Full description of Reed Reversing Tool and details of operation is given in this interesting illustrated book.

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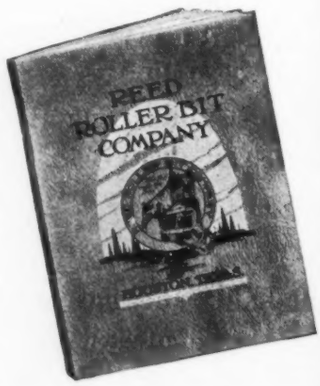

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Natural Gas Developments

GAS OFFICIALS PROMOTED

PITTSBURGH, Pa., Jan. 1.—Edward D. Leland, a pioneer in the natural gasoline industry and who in 1892 built the first high pressure natural gas compressing station, has been appointed vice president and general manager of the Equitable Gas Co., which supplies Pittsburgh with natural gas. Mr. Leland formerly was assistant general manager and was appointed to his new position when Alfred Hurlburt was made vice president of the Philadelphia Co., the parent organization of the gas company.

The advancement of Mr.Hurlburt to the vice presidency of the parent organization was made as a reward of meritorious services, according to Arthur W. Thompson, president of the Philadelphia Co. Mr. Hurlburt is a director of the Natural Gas Association of America and one of the best known natural gas officials in the country.

INDUSTRIAL USE OF GAS STOPPED IN NEW YORK

ALBANY, N. Y., Dec. 30.—An order prohibiting the sale of natural gas for industrial purposes by all natural gas companies which supply the public in New York State has been issued by the Public Service Commission. The order is made effective for four months and dates back to December 1. A similar order has been issued by the commission during the past two years and is for the purpose of aiding in conserving natural gas for winter use in households.

The order is said to affect the Iroquois Natural Gas Co. of Buffalo and about 50 smaller concerns in the southern and western parts of the state. There was some question as to whether the order would affect the Iroquois Natural Gas Co., as that concern, it is said, supplies a mixture of natural and manufactured gas.

GOOD PROGRESS IS BEING MADE ON GAS PIPE LINES

CASPER, Wyo., Dec. 30.—The surveying of the gas line from the Baxter Basin Field in southern Sweetwater County, Wyoming, to Salt Lake City and Ogden, Utah, is almost completed. This line is to take the gas from the Ohio Oil Co.'s and the Midwest Refining Co.'s wells at Baxter Basin and deliver it to the Utah cities for domestic consumption. The surveying crews started at Baxter Basin and are now nearing Salt Lake City in spite of bad weather and other climatic conditions that hindered the work greatly.

The new pipe line from the Sunburst Field in northern Montana to Shelby that is to furnish gas to that city has about 4 miles of pipe laid and covered and the crews are working hard to finish the laying about the last of January. This gas line will relieve the coal situation in that vicinity considerably as the use of gas at Shelby will allow all the coal now used in that city to be sold to other points and for use in the oil field.

CANADIAN GAS DECISIONS

CHATHAM, Ont., Jan. 1.—The Natural Gas Board of Reference for Ontario has given out rate decisions in regard to a number of gas rate applications heard in November. Application of the township of Southwold and the villages of Fingal and Shedden against the rate increase granted by Referee Henderson last year to the Southern Ontario Gas Co. has been decided in favor of the municipalities, which accordingly revert to a rate of 35 cents net, on the ground that the franchise is chiefly a transmission franchise. The appeal by the village of Dutton was decided in favor of the company, the board holding the franchise to be a distributing franchise and accordingly sustaining the 65-cent net rate.

VOTERS INCREASE RATES

SHREVE, Ohio, Dec. 30.—Residents of this place have voluntarily voted to increase their rates for natural gas from 35 cents a thousand cubic feet to $1 for the first thousand and 50 cents per thousand for all in excess of 1,000 cubic feet. The natural gas users here were being supplied at 35 cents a thousand cubic feet under a franchise that still has two years to run. However, when the gas company explained that it was losing money under the old rate, the city council passed a new grant increasing the old rate. Voters have approved this new grant at a referendum election by a vote of 375 in favor of the grant and 165 aganist it.

DENVER GAS LINE

The matter of the marketing of natural gas from Wyoming fields to Denver is again being discussed. W. A. Miller, head of the Illinois Pipe Line Co., is quoted as saying his concern is ready to lay the line at any time the capital to back the project is forthcoming. The Lost Soldier district has large quantities of gas shut in and in prospect that would be sufficient to furnish Denver with gas for domestic purposes and the proposed line from this field would be about 250 miles long. Several sizable cities along the route would also expect to draw from such a line.

LARGE GAS WELL

WICHITA FALLS, Tex., Jan. 1.—M. R. Hemphill's No. 1 Corbett, 3 miles south of South Bend, Texas, and about three-quarters of a mile east of the road to Ivan, is reported making 21,000,000 cubic feet of gas with a rock pressure of 1,600 pounds from a total depth of 4,120 feet. The gas sand is 120 feet thick.

LAYING GAS LINE

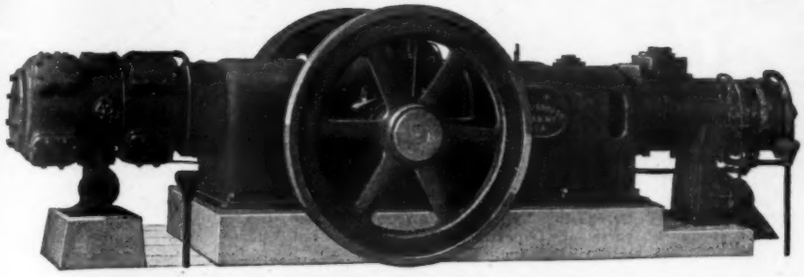
CASPER, Wyo., Dec. 30.—Two miles of the new gas line from the Sunburst Field in Montana to Shelby, Mont., has been laid and the work is progressing in good shape. This line is to supply Shelby with natural gas for domestic and power purposes.

HEAVY DEMAND FOR FIELD SUPPLIES AT SMACKOVER

Supply companies are having difficulty in meeting the demand for materials in connection with the development of the new Smackover Field in Arkansas. For several weeks many of the large supply concerns have been concentrating a large part of their resources in supplying the needs of the pool from which comes the greatest demand for materials at the present time. A number of new pipe lines have been laid and several others are under construction. This fact has resulted in an actual shortage of line pipe and a few concerns are not taking orders under less than 30 to 90 days delivery. This conditions exists in spite of the fact that mills are operating nearer capacity than at any time during the year. There has also been some improvement in the rail service which has caused delays in the delivery of tubular goods in the past.

The demand for tankage in small and large sizes has also been especially strong. To date, however, the manufacturers of the small tanks have been able to meet the needs of the field and there has been little delay in the construction of storage tanks for which there has been a strong demand, due to the inadequate pipe line facilities. Several of the major supply companies have made large additions to their Arkansas branches. It is believed that the peak of demand for the Smackover Pool in so far as field supplies are concerned has been reached.

Clark Gas Engines and Compressors

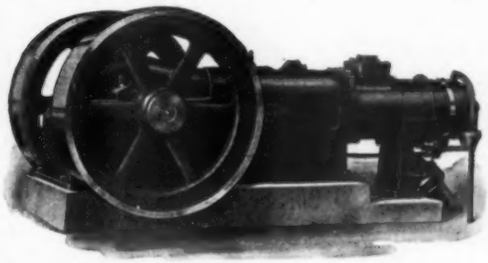


The Clark Direct Driven Gas Compressor

(above) is designed to meet the exacting requirements of 24-hour continuous service. The power end is made in three sizes, 60, 80 and 165 H.P. Compressor end is made in sizes ranging from 6½-inch by 20-inch to 20-inch by 20-inch, and vacuum pumps 24-inch and 26-inch by 20-inch, to meet all kinds of gas pumping and gasoline plant service.

The Clark Gas Engine

(below) is built in three sizes, 60 and 80 H.P. single cylinder and 165 H.P. twin cylinder.



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WIRE LINES FOR DRILLING

PROBLEMS OF MOTOR TRUCK HAULING

Various Features of This Question, Including Costs and Difficulties, Are Discussed from Standpoint of Extensive Experience of One Large Company in Mid-Continent District.

By I. G. Harmon
Marland Oil Co., Ponca City, Okla.

About one year ago the Marland Oil Co., in its desire to effect all economies possible, saw fit to centralize those departments of the company which give service to the major branches into one department, to be known as the Service Department. In this department were placed the Engineering Department, Purchasing Department, Warehouse Department, Department of Additions and Extensions and Motor Transportation Department. Following this reorganization a very careful and detailed study was made of the several departments constituting the Service Department and policies formulated for their operation and management. The information in this article is primarily the result of the year's study and operation of our own truck department.

Oil field hauling is not an insignificant matter with any company. It is important in two ways. If hauling is not done promptly, systematically and according to schedules, disruption results which affects the operation of almost every branch of the business. The nature of hauling is such that it is subject to many delays, break-downs, and needless expense. We have found that the savings effected have justified all the study and effort which we have given the problem.

A truck department cannot do its work well without the complete co-operation of all the operating departments. Under our plan of operation the various departments are charged for their hauling on a per hour basis, and it would appear that with this incentive all departments would co-operate fully, realizing that it would result in lower costs to themselves, but it has taken us time to instill this spirit of co-operation, but slowly it has come and we see the beneficial results of it. There are three principal ways in which the operating departments can co-operate. One is by anticipating their hauling requirements.

The nature of the oil business is such that there is emergency hauling, and always will be, and this must be taken care of. We find this expensive hauling, but unavoidable. When a fishing tool is needed at a well it is not a question of waiting until the next day because it could be hauled cheaper, but it means that the tool must be hauled at once, irrespective of road conditions or costs. However, our figures indicate that 90 per cent of the hauling can be anticipated, and if the truck department knows a few days in advance that the hauling must be done, they are able to organize so that they can handle maximum loads and probably handle return loads. Under this plan the equipment can be kept moving every day, and the only way a truck department can operate cheaply is by keeping the trucks moving. Another way it can co-operate is by having material ready to load when the truck arrives, and the third way is by promptly reporting poor service and irregularities, and it then becomes the duty of the truck department to remedy these conditions promptly.

Co-ordination a Benefit

One of the greatest economies which we have effected in our truck department has been in the centralizing of truck orders in one man, who is also an assistant to our warehouse superintendent. Prior to this arrangement various department heads and various superintendents and foremen were in the habit of giving their truck orders directly to the superintendent of the truck department. The result of this was that often several trucks would be going to one district and possibly none of them was loaded to capacity. These trucks might return empty, when a return load was available.

Under our present arrangement the assistant to the warehouse superintendent is on duty at half past six in the morning ready to receive orders for material, and another assistant in the warehouse office remains on duty until 6 o'clock at night. At a convenient point is located a box in which orders for material which come in during the night may be placed. An assistant is at the warehouse at 6:30 in the morning. The result of this arrangement is that all loads for one district are made up under the direction of one man, and if material is to be returned he arranges for the return loading. This arrangement has resulted in one of our greatest savings.

One of the never-ending arguments in the oil fields is as to the relative cheapness of handling with teams and handling with trucks. Both sides to this argument have many good reasons in support of their contentions. Our experience indicates that truck hauling is the cheaper.

Trucks Needed

We have come to the conclusion that the amount of equipment a company should own is that amount which will take care of the average or normal condition. During the winter season especially, the road conditions are occasionally such that trucks cannot travel economically. At these times team hauling is undoubtedly cheaper. Our practice is, therefore, that we will maintain sufficient equipment to do the average amount of hauling necessary, and that we will hire teams or trucks to take care of the peak load and to do the hauling when the roads are impassable for trucks.

We have in our service 1-ton trucks, 2-ton trucks, 3½-ton trucks, trailers and tractors. Our records over the past year show that hauling by tractor is the most expensive, due primarily to the excessively high maintenance cost of this class of equipment. I think it advisable, however, that production companies should have in their equipment one or two tractors for the handling of only very heavy equipment. Our figures indicate that 1-ton trucks are also expensive, but they give a class of service which must be given, such as quick hauling and emergency hauling. These trucks must go irrespective of road conditions, and although we never expect to get their cost per mile as low as the larger trucks, we do plan by careful choice of equipment and careful management to reduce it as much as possible. The best records made by our trucks have been in the 2-ton and 3½-ton classes, and the latter made the better record. This is not due to any special merit the 3½-ton truck has over the 2-ton truck, but to the fact that the better the road conditions the heavier the equipment which can be used. Our records show that during the rainy months the 2-ton trucks haul for lower costs than the larger trucks.

During the past year or two most oil companies have come to realize the advantages of standardization in motor equipment. We have had in our fleet a half dozen different makes of trucks and the disadvantages of it have been constantly apparent. We maintain, in our repair shop, spare parts, and the expense of keeping in stock the various spare parts necessary for several makes of trucks, is no small item. It tends toward inefficiency in shop work. Mechanics are often familiar with one make

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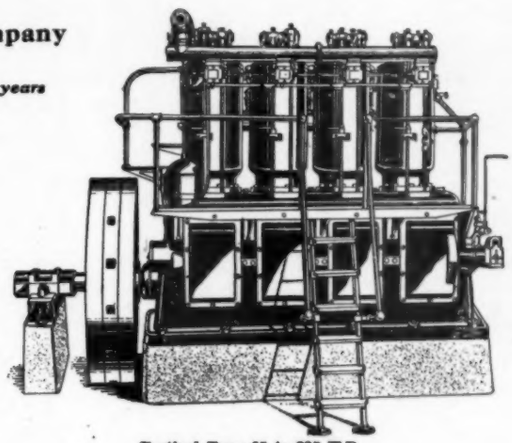

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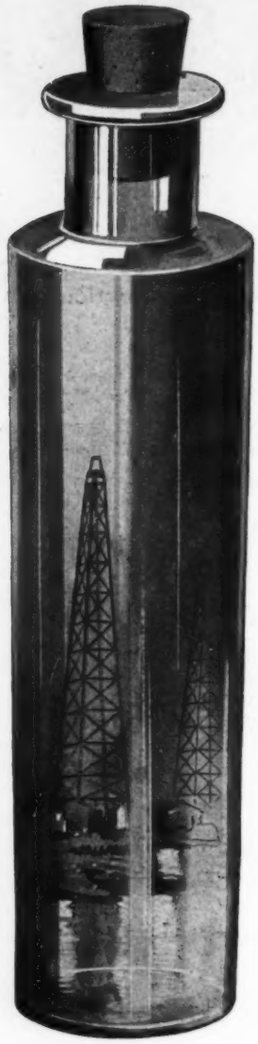

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of equipment when they are not familiar with other makes of equipment, and the various classes of equipment have their own peculiarities and little tricks which mechanics become familiar with only by experience. Truck drivers may successfully handle one make of truck and not be successful with another make. Another disadvantage is that as equipment becomes old it often becomes desirable to interchange parts, junking part of your equipment. This is not easy to do when you have several makes of equipment in your truck department.

Operating Cost Paramount

The purchase of new trucks is a real problem. In my attempt to compare the merits of different trucks, I have reasoned along the following lines: The company operating trucks is responsible for the drivers; for the proper loading, for the proper oiling; therefore, for any poor service resulting from defects along these lines, the operating company is responsible. The truck itself is responsible for its gasoline consumption, for its maintenance and repairs, and for its speed. Any defects along these latter lines are chargeable directly to the truck. In making my comparison between trucks, I therefore compare them along the latter lines.

Few people have stopped to realize that the variations in gasoline consumption over the life of a truck is a very considerable item in cost. For instance, if a truck averages 50 miles per day, with an average gasoline consumption of 5 miles to a gallon, and another truck with the same mileage averages 6 miles to a gallon, over the life of a truck this saving will amount to about $400. In reality, I have seen trucks vary as much as 2 or 3 miles to a gallon, and of course the more mileage the truck makes, the greater the difference. There is merit in a truck which uses less lubricating oil than another, but I have never been critical of the excessive use of lubricating oil. One of the great difficulties confronting truck departments is that of under-lubrication, and I have always felt that an attempt to minimize the use of lubricating oil would result in mechanical difficulties. During the past year we have adopted a plan whereby the lubrication of trucks is carefully inspected at our various garages with the result that in the past 12 months we have not had a single scored cylinder.

Cost of Repairs

I find that the cost of repairs may vary from practically nothing the first year of a truck's life, to as high as $1,200 to $1,500 per year, during the third year.

On January 1, 1922, after an investigation of our truck conditions, we decided it was advisable to install an adequate system for keeping cost accounts on truck operations. It was necessary that such a system should be tied into the general books, and it was also advisable that the method of collecting the data be such that it should cause as little inconvenience as possible to the field men. The system we adopted centers in the office of the superintendent of motor transportation, and his assistant compiles the data. Immediately after the end of each month this information is compiled into a condensed report which is submitted to the executive officer in charge of the service department for his information. The information shown on this report is as follows: A record is kept of each individual truck, showing its cost for truck drivers and helpers, gasoline, oil, grease, labor on repairs, material on repairs, general service and storage, tire expense, overhead, total operating cost, depreciation, total cost, earnings, gain, loss, running miles, cost per running mile, ton miles handled, and cost per ton mile, and totals under each heading for the entire fleet. The final figure which we want, and which is the test of one month's service against another, is that of the average cost per running mile and the average cost per ton mile for all the tonnage handled by the department.

A study of this monthly report brings out many things. It shows which drivers are making good. A copy of this report is posted so that the various drivers may know what their record was during the preceding month. It shows what the gasoline consumption per truck has been and it indicates whether or not the carburetors are properly adjusted or whether or not trucks are left running while idle, and it also serves as an indication of the condition of the motor. The record shows if sufficient lubricating oil is being used or if there is an excessive use of it. It gives us our record on tires, and in this connection I would add that the difference between the life of various makes of tires is very great. The report gives us a complete record on the cost of repairs. If we find that repairs are running too much for several months in succession, it indicates that the truck is probably reaching the limit of its useful life and should be replaced by another. If repairs of the same general nature are necessary month after month on the various trucks, it indicates a weakness in that particular part, and the information serves as a guide in the purchase of new equipment.

(Continued Next Week.)

HOLIDAY LULL AFFECTS ALL OF THE FIELDS

(Continued from page 9)

Central West

A crevice well good for 120 bbls. brought in by The Sun Co. in the Tiffin Field, Seneca County, Ohio, was a feature of activies in fields of the Central West during the past week. The next best completion in these fields during the week was a well of the Ohio Oil Co. in the old Lima Field drilled in Allen Township, Hancock County, Ohio, it being good for 65 bbls. A few completions were recorded in Indiana, they being good for 20 to 25 bbls. each. Illinois passed a quiet week without any completions being recorded. Some work is being done in eastern Kentucky and preparations are being made in fields there for much new work.

Wyoming

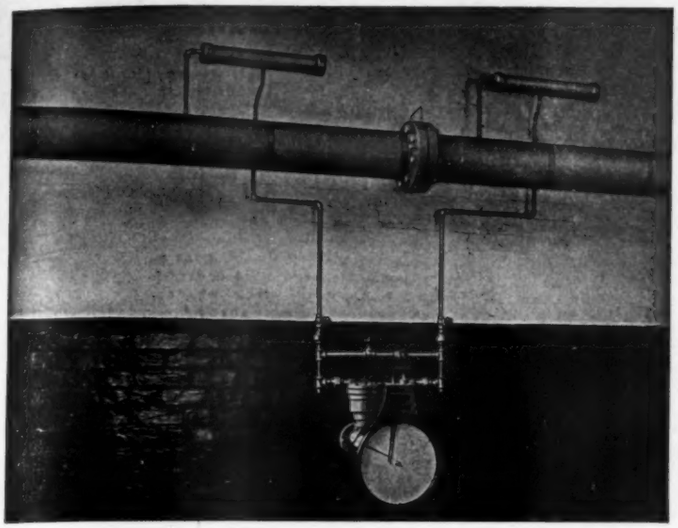
Of chief interest at this time in Wyoming seems to be the well drilled about 50 miles north of Riverton, which has a hole filled with oil and which is gassing. The well is partly shut in while storage is being erected and it will be drilled in as soon as this is done. Oil men in the section variously estimate the well as being good for from 250 to 500 bbls. a day. Some activity for this season of the year is being shown in the Bolton Creek Field, about 30 miles south of Casper, new work being started there by several concerns. The Brenning Basin Field in Converse County, one of the oldest shallow fields in Wyoming, also is coming in for much attention at this time.

CALIFORNIA WILDCAT DRILLING

LOS ANGELES, Cal., Dec. 28.—In the Bellflower district, Los Angeles County, the Cal-Petro Producers Syndicate had an oil showing in their No. 1 well at 2,035 feet. A string of 10-inch casing was landed and the showing will be thoroughly tested before going deeper. The showing came as a surprise because of the shallow depth at which it was found and has caused a good deal of excitement among the oil land leasing people. Two other companies in the field, the Bellflower Oil Syndicate and the Midvein Oil Co., neither of which has spudded yet, are watching the result of the test with interest.

In the Buena Park district, the Standard Oil Co. has abandoned No. 1 Mitchell at 5,384 feet. The Union Oil Co.'s No. 1 Downey Community, drilling at 4,592 feet, has not shown any encouragement to date and the outlook for a well is not very favorable. The Mahala Oil Co., after drilling two deep holes, is negotiating with several large companies, it is reported, to dispose of the company's prospective oil territory in the Puente Hills.

Measuring Steam with a Type D 50-inch Westcott Differential Gauge



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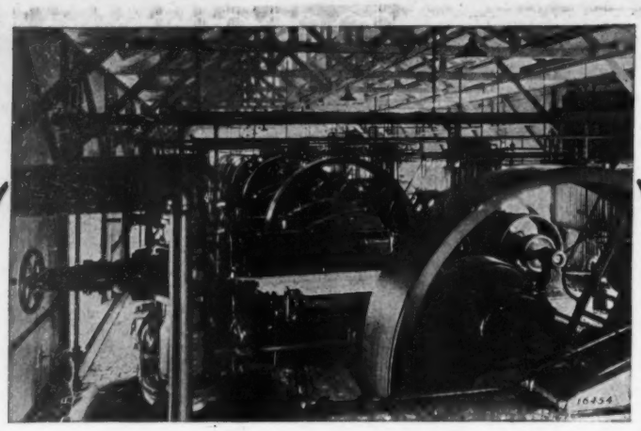

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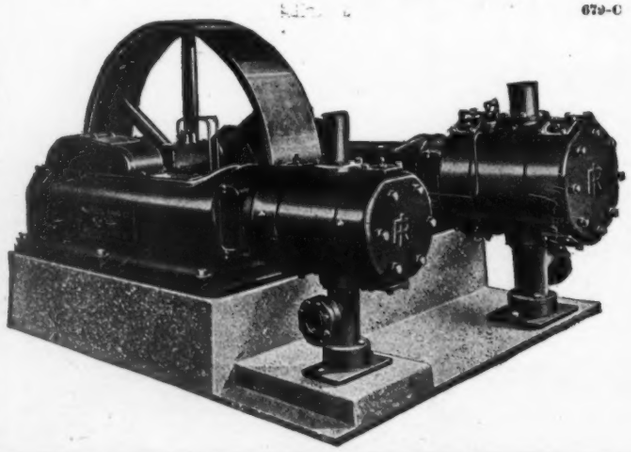


Ingersoll-Rand

R-431

TRAVELER TELLS HOW PETROLEUM WAITED ON HIM WHEREVER HE WENT

By N. O. Fanning

New York, Dec. 30.—To what extent the petroleum industry is interwoven in our daily life, no matter in what part of the United States we may travel, has been emphasized by one man identified with oil who has just completed a trip of the South. It was the first time the person referred to had make a visit since his youth, some 18 years ago.

Boarding a coastwise passenger liner, at New York, he set sail, disembarking at Savannah a few days later. He decided to stay here overnight, engaging rooms at a hotel. These rooms overlooked the broad sweep of the Savannah River, and his first scanning of the horizon resulted in a realization of the fact that the message of oil was present, for there, in the center of everything, was a group of bright yellow tanks, warehouses and pumps, surrounding an oblong piece of water representing a slip large enough to admit a good sized oil tanker. The whole was a pretty sight to anyone who admired neatness, efficiency and thoroughness in industry. It was a typical distributing station for petroleum products in one of America's growing ports of commerce.

A large sign stood near the mouth of the slip, on the edge of the Savannah River, which could be made out from the vantage point of the hotel only with the aid of field glasses. It was the familiar sign of the Gulf Oil Corporation, which announces the presence of "That Good Gulf Gasoline."

Later, in the busy streets of Savannah, could be seen what appeared to be a fleet of red automobiles, all conspicuously bright and clean, immaculately kept, and bearing the also familiar sign of "Texaco." Now as to the correctness of that word "fleet" the observer would not stake his life. He might, for instance, have been looking at the same car again and again as it spun in and out of the more or less heavy traffic in the center and outskirts of the city. At any rate, if this was the case, he would testify to the fact that no time was lost by this car in getting around from place to place. It bespoke "hustle" in its every move.

Unfortunately, only one big railroad of the South has adopted the use of oil, instead of coal, in its locomotives. On his previous trip as a boy the traveler remembered the railroad by which he was now traveling south toward Florida because that train made frequent stops on the way through Georgia to take on wood. The step upward from wood-burning to coal-burning had been taken since, and it appeared only a question of time perhaps, when the next upward step, to oil-burning, would be recorded.

South of Jacksonville, the traveler's Pullman was transferred over to the Florida East Coast, an oil-burning road. Its founder, the well-known H. M. Flagler, was one of John D. Rockefeller's associates in the foundation of the Standard Oil Co.

Florida Progressing

One can now travel by bus from Jacksonville to Miami, or practically along the entire east coast of Florida. There are also "bus" lines between all intermediate points.

The oil man referred to stopped at St. Augustine long enough for a rest and then decided to motor from this point to Crescent City, a small, typical southern town, in the interior.

From St. Augustine to Palatka, on the St. Johns River, there is a fairly good road, and the automobile spun along with comfort to the traveler. The deep, Florida white sand had been replaced by red bricks, placed on a good foundation. Aside from the obstruction caused by the fact that a herd of cattle picked out this brick road for grazing purposes, (the rider was assured by the driver that he had gone over this road every day for years and had never failed to find these cows placidly situated in the middle of the road), the road furnished every advantage to the autoist.

The oil man remembered that the white sand, found throughout the State of Florida, was for many years the despair of the more progressive natives and of tourists, for most cars would sink their wheels into it until the car practically refused to do more than creep along. While the automobile was coming into general use in other parts of the country, the south had to be satisfied with the horse and mule. During this period, heavy cars were made the rule. Mr. Ford helped the situation by perfecting a light car, and the building of good automobile roads, now under way, is bringing the State into increasing favor and prosperity.

South of Palatka, there was a stretch of road which was despicable, the same sort of road which had existed there 18 years before. Soon however, the traveler's car turned into a completed section of the new State highway, which will soon connect Jacksonville with Tampa. On this road the auto spun along at 40 miles per hour without a jostle or bump. When completed, the highway will be one of the best in the country.

Crescent City, a town of less than 1,000 inhabitants, will be on this road, but now it is necessary to plough through the sand in order to enter it from either direction—north or south. It has no other entrances, for there are lakes on the other two sides—beautiful lakes, where fish and birds abound.

In such a town as this it would not be expected that the use of oil would have gained much ground. The opposite is the fact, for among the improvements that the town has shown in the last 19 years are several large, well equipped garages, which would do justice in size to a good sized city. These are filled with automobiles—when the owners are not using them, which is seldom. It seems that nearly every one owns a car—sand or no sand. What will it be when the State highway touches this town?

The traveler recognized the well-known signs of Texaco, the Sun Co. and the Standard Oil Co. of Kentucky.

Lake Crescent, 18 miles long, is an important artery of commerce for Crescent City, which in spite of its small size is the second largest shipping point for citrus fruit in the State of Florida. The single freight boat which carries much of this fruit on the first leg of its journey to the northern markets is propelled by a gasoline engine. It replaces a larger boat which in the old days made the run between the town and Jacksonville, by way of the St. Johns River, and Lake Crescent, and which was propelled by steam.

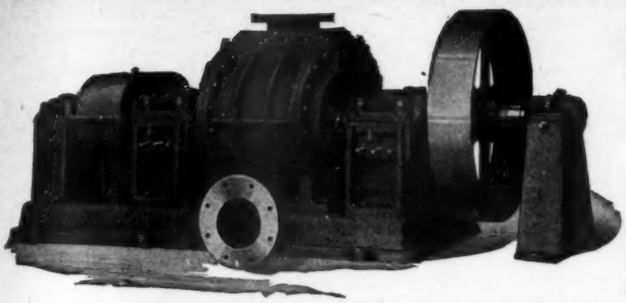
The visitors also found that the local ice plant was trying out a new oil engine, recently introduced.

In fact oil was as much in evidence here, in its numerous uses, as in New York, which is supposed to be one of the most advanced cities of the world.

Oil and the Citrus Industry

There are not enough good roads in Florida to warrant the transportation of citrus fruit on a large scale from the interior to Jacksonville. but the auto truck is in general use in transporting the fruit from the groves to the packing houses, despite the deep sand in the roads which easily yields to the weight on the wheels.

The message of petroleum in the town of Crescent City did not however, end with its numerous uses in the every day life of the community.



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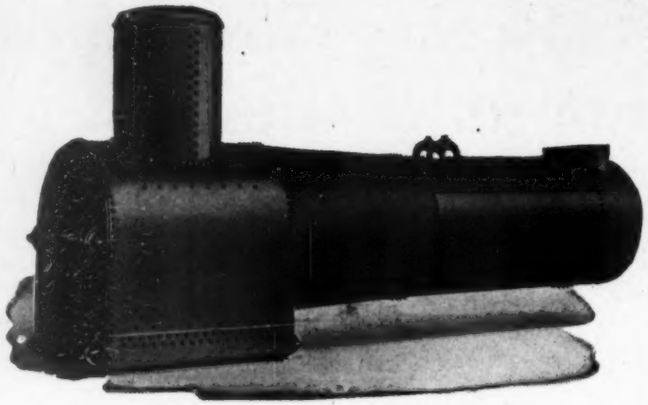

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Sold by Oklahoma Tool & Supply Co., Tulsa

Not far from town there is a derrick, familiar in the southwest, but a strange sight here. This derrick is rigged up and the rig is now in operation. A test is being drilled and at the latest reports a "showing" had been struck. The traveler, although interested in oil, did not have an opportunity to investigate for himself, so that he was not in a position to make any prediction as to the outcome.

The Southeast is one large and important section of the United States, where oil may never be. But in Crescent City, at least, it will not be because they did not try.

Oil followed the traveler throughout his sojourn in the South. On the boat returning along the coast to New York it was also in evidence, all southbound, probably to the Gulf Coast, Mexico, or California.

The vessel on which the traveler found himself was a coal-burner. On asking the captain the reason for this, it was found that the same company that owned the vessel had extensive coal mining interests, and therefore could obtain its fuel at cost.

16 STANDARD OIL COMPANIES DECLARED STOCK DIVIDENDS

By N. O. Fanning

New York, Dec. 30.—Sixteen Standard Oil companies, comprising 15 former subsidiaries, of the Standard Oil Co. of New Jersey, and the parent company itself, have this year declared stock dividends aggregating in par value more than a billion dollars—to be precise $1,021,641,093.

In addition to this three concerns now affiliated with or subsidiary to Standard Oil companies have declared stock dividends aggregating $97,250,000. These are the Humble Oil & Refining Co., the Magnolia Petroleum Co., and the National Fuel Gas Co.

The companies which have taken action are the largest of the Standard Oil group, and the declaration of stock dividends signifies the enormous growth of their properties during the past few years—a period which has been the most prosperous in the history of the industry.

The capitalization of the 15 companies has been raised from a total of $505,617,506 to 1,527,259,499.

In addition several of the Standard Oil companies have also reduced the par value of their stock from $100 to $25 per share. These are the Standard Oil Co. of Kansas, Kentucky, New York and Vacuum Oil. Among the subsidiaries, the Humble Oil & Refining Co. has taken action toward a similar reduction in the par value of its stock.

The stock dividends have been paid in each case out of surpluses, representing growth in value of properties, either due to reinvestment of company earnings year by year, or natural appreciation in value due to circumstances, such as discovery of oil on properties having only prospective value originally.

It can therefore be seen that the companies and their stock holders are not enriched by these stock dividends, which are in reality only bookkeeping entries, but only by the gradual increase in extent of and value of the properties of the companies year by year. This is stated because there is a good deal of confusion in the minds of many as to the real meaning of stock dividends.

Change in Situation

This action by numerous Standard Oil companies might have come sooner had it not been for the attitude of certain of the public which has looked upon stock dividends as money taken from a company and put in stockholders' pockets, a view which would do justice only to one who has not studied corporation finance and does not care to. The fact is that money does not enter into stock dividends, as it is stock certificates only which are distributed.

While this attitude has worked its way into the minds of public officials at certain times to such an extent that the Government has threatened to tax stock dividends as income, at present there is an attitude quite the opposite, namely one which holds that the surplus of the companies should be taxed. The declaration of stock dividends wipes out this surplus.

Jersey Dividend Leads

The stock dividend declared by the Standard Oil Co., of New Jersey, is larger, in the amount of stock involved, than any of the others, amounting in par value to more than $400,000,000, or more than one-third of the total. The common capitalization of this company now outstanding amounts to $597,929,700. The preferred capitalization amounts to $196,676,600, making a grand total outstanding capitalization of $704,606,300. This is the largest capitalization of any petroleum company now existent.

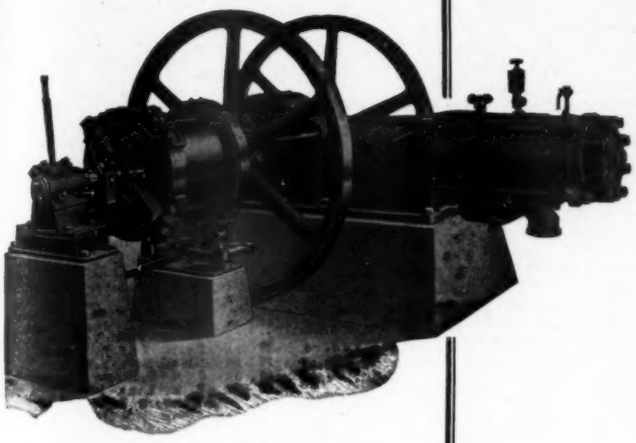
The following table shows stock dividend declarations by the Standard Oil companies this year, including those yet to be ratified:

	Amount	Outstanding Capital Old	Outstanding Capital New	Par Value Stock Old	Par Value Stock New
Atlantic Refining	900%	$ 5,000,000	$ 50,000,000	100	100
Borne-Scrymser	400%	200,000	1,000,000	100	100
Cumberland Pipe Line	100%	1,500,000	3,000,000	100	100
Ohio Oil	300%	15,000,000	60,000,000	25	25
Prairie Oil & Gas	200%	18,000,000	54,000,000	100	100
Prairie Pipe Line	200%	27,000,000	81,000,000	100	100
Solar Refining	100%	2,000,000	4,000,000	100	100
Standard of California	100%	100,971,111	201,942,222	25	25
Standard of Indiana	100%	107,360,455	214,720,910	25	25
Standard of Kansas	300%	2,000,000	8,000,000	100	25
Standard of Kentucky	33⅓%	6,000,000	8,000,000	100	25
Standard of Kentucky	66⅔%	10,000,000	16,666,667	25	25
Standard of New Jersey	400%	101,585,940	507,929,700	25	25
Standard of New York	200%	75,000,000	225,000,000	100	25
Standard of Ohio	100%	7,000,000	14,000,000	100	100
Union Tank Car	50%	12,000,000	18,000,000	100	100
Vacuum Oil	300%	15,000,000	60,000,000	100	25
Total		$505,617,506	$1,527,259,499		
Humble Oil & Refining	75%	25,000,000	43,750,000	100	25
Magnolia Petroleum	50%	120,000,000	180,000,000	100	100
National Fuel Gas	100%	18,500,000	37,000,000	100	100
Grand total		$668,117,506	$1,788,009,499		

Although additional companies may yet take action on stock dividends, the bulk of the companies that were expected to do so have already taken action. The year, 1922, marks the largest any year in the history of the petroleum industry.

BAD WEATHER FOR "GAS" SALES

Bowling Green, Ky., Jan. 1.—Gasoline sales fell off in the Kentucky district during the past week on account of the weather conditions. Kerosene and fuel oil are holding their own.



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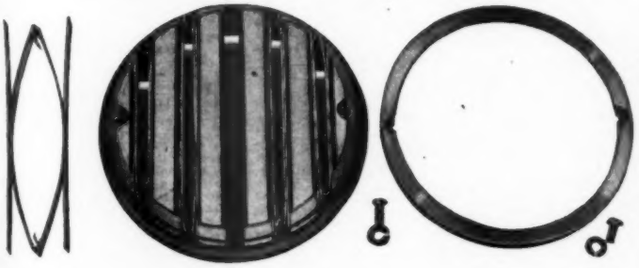

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Machine Oils	Pipe Coating
Dynamo Oils	Greases
Red Oils	Cup Grease
Pale Oils	Gear Grease
Floor Oils	Axle Grease
Paraffin Oils	Solid Lubricants
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MEXICAN OIL SHIPMENTS LOWER IN NOVEMBER THAN IN OCTOBER

By George Blardone

Tampico, Mexico, Dec. 26.—Shipments of petroleum from Mexican ports of primary clearance during the month of November totaled 12,232,623 bbls., a decrease from the movement in November, 1921, of 4,884,984 bbls. The past month's movement was a decrease of 1,246,692 bbls. from the movement during the month of October. This latter decrease was entirely of South Fields crudes, as the Panuco movement for November, included in the above total, was 500,000 bbls. over the volume of Panuco oil exported during October.

The movement of Panuco crude during November broke all previous monthly records for this heavy oil totaling as it did, 4,406,851 bbls. Cia. Mex-Holandesa La Corona (Royal Dutch), easily led the list of Panuco shippers exporting, itself, over 1,000,000 bbls., and filling out vessels for other companies to the tune of 700,000 bbls. plus besides. Much of this was production from the Cacalilao sector of the Panuco, which this company is now exploiting to the limit of its transport ability both pipe lines and river barges. Incidentally the Corona are the only people drawing on Cacalilao thus far, Transcontinental Petroleum Co., next in order with production there, being engaged in rushing pipe line transport to river loading stations as fast as it can so it can commence moving from there also.

From the South Fields, Huasteca Petroleum Co., (Mexican Petroleum), easily dominates the production situation, its own vessel movements reaching 3,467,512 bbls., to say nothing of 500,000 bbls. loaded over its wharves for other companies, coming under Huasteca's local sales accounts.

The November movement, in detail, follows:

FROM TAMPICO

By Cia. Mex. Holandesa La Corona S. A.

Nov.	Rig	Vessel and Destination—	Bbls.
2	Ss.	Geo. H. Jones, Baton Rouge	66,774
4	Ss.	Malmanger, United States	59,254
4	Ss.	H. D. de la Meurthe, Europe	**59,919
6	Ss.	Melona, New Orleans	*52,168
6	Ss.	Cliona, Europe	*50,078
7	Ss.	James McGee, Baltimore	68,799
8	Ss.	Freeport Sulphur No. 1, Freeport	18,839
9	Ss.	Corbis, Europe	*49,794
9	Ss.	Cardita, Europe	*47,013
10	Ss.	Freeport Sulphur No. 6, Freeport	27,875
12	Ss.	Lampas, United States	44,313
13	s.	Gedania, United States	76,129
13	Ss.	Strombus, Boston	48,427
15	Ss.	Trinculo, London	*47,496
17	Ss.	Melona, New York	*47,997
17	Ss.	Queen Louise, Boston	49,261
18	Ss.	Swiftsure, Fall River	13,464
19	Ss.	San Patricio, United States	28,412
21	Ss.	El Oso, Boston	59,049
21	Ss.	H. L. Pratt, Philadelphia	51,593
23	Ss.	G. R. Crowe, United States	27,946
26	Ss.	F. Q. Barstow, United States	75,637
26	Ss.	Litiopa, United States	*42,883
26	Ss.	James McGee, United States	71,846
28	Ss.	Malmanger, Baltimore	60,061
29	Ss.	El Cano, Europe	*45,149
29	Ss.	Chas. Pratt, United States	76,014
30	Ss.	Marinula, Europe	46,962
		Bunkers deliveries	116,606
		Total	1,583,758

By Huasteca Petroleum Co. (Mexican Petroleum)

Nov.	Rig	Vessel and Destination—	Bbls.
1	Ss.	Mexoil, Port Aransas	*15,027
1	Ss.	Fueloil, New Orleans	*14,444
2	Ss.	Ario, Providence	**73,706
2	Ss.	G. G. Henry, Galveston	*61,921
3	Ss.	Deam Emery, New York	*63,850
3	Ss.	E. Walker, Boston	*65,962
4	Ss.	Panoil, Miami	*14,684
5	Ss.	P. H. Harwood, Galveston	*66,329
5	Ss.	N. Bridge, Houston	*38,259
5	Ss.	Mendocino, Southampton	*59,435
6	Ss.	Inverlieth, Belfast	*56,156
6	Ss.	E. L. Doheny, Jr., Rio de Janeiro	*67,388
7	Ss.	Nora, New York	**95,055
7	Ss.	Mantilla, Southshields	*52,788
8	Ss.	Mexoil, New Orleans	*15,395
8	Ss.	G. G. Henry, Galveston	*63,634
8	Ss.	S. M. Spalding, Providence	*63,139
9	Ss.	G. W. Barnes, Tampa	*57,670
10	Ss.	Baltic, New York	**101,519
10	Ss.	Fueloil, Port Aransas	*14,985
11	Ss.	I. C. White, Boston	*61,605
11	Ss.	P. H. Harwood, Galveston	*65,735
11	Ss.	C. A. Canfield, New York	*59,204
13	Ss.	H. G. Wylie, Norfolk	*38,426
14	Ss.	N. Bridge, Houston	*36,956
15	Ss.	Geo. G. Henry, New York	*60,939
16	Ss.	Argon, Const-Port Said	*61,702
17	Ss.	P. H. Harwood, Galveston	*68,631
18	Ss.	Caloric, Southampton	*59,443
18	Ss.	Fueloil, Port Aransas	*14,356
18	Ss.	F. K. Lane, New Orleans	*65,093
19	Ss.	Wm. Green, Galveston	*67,086
19	Ss.	Mirlo, Providence	**79,887
19	Ss.	C. E. Harwood, San Pedro	*15,537
19	Ss.	C. E. Harwood, Puerto Plata	*12,382
20	Ss.	Solana, Panama	*63,114
20	Ss.	F. R. Kellogg, New York	*63,281
21	Ss.	Cerro Ebano, New York	*74,929
21	Ss.	J. M. Danciger, Providence	*64,001
21	Ss.	E. L. Doheny, 3, Buenos Aires	*61,894
21	Ss.	E. L. Doheny, 3, Montevideo	*16,599
22	Ss.	A. C. Bedford, New York	**104,743
22	Ss.	G. W. Barnes, Boston	*60,459
23	Ss.	Ario, New York	*74,038
23	Ss.	Panoil, Houston	*14,857
23	Ss.	Mexoil, New Orleans	*14,845
23	Ss.	Cerro Azul, New York	*76,459
24	Ss.	Satana, New York	*44,011
24	Ss.	Fred Ewing, New York	*60,472
24	Ss.	W. L. Steed, Portland	*57,107
25	Ss.	Fueloil, Miami	*14,151
25	Ss.	Wm. Green, New Orleans	*65,669
26	Ss.	E. Walker, New York	*64,775
26	Ss.	P. H. Harwood, Galveston	*65,373
26	Ss.	N. Bridge, Jacksonville	*39,851
27	Ss.	Uncas, New York	*42,484
28	Ss.	Deam Emery, Boston	*65,180
28	Ss.	Nora, New York	**95,335
28	Ss.	S. M. Spalding, Providence	*64,652
29	Ss.	F. K. Lane, New York	*62,384
		Bunkers deliveries	204,652
		Total	3,467,512

By Freeport & Mexican Fuel Oil Corp. (Sinclair Interests)

Nov.	Rig	Vessel and Destination—	Bbls.
3	Ss.	Mirita, Cuba	55,524
3	Ss.	W. L. Connelly, Houston	31,605
4	Ss.	Harry Farnum, Houston	33,627
8	Ss.	Madrono, Cuba	54,944
9	Ss.	Gene Crawley, Jacksonville	32,731
10	Ss.	Swiftwind, Fall River	71,784
11	Ss.	Tamesi, La Ceiba, C. A.	24,772
12	Ss.	W. L. Connelly, Houston	31,970
14	Ss.	Sucrosa, Baltimore	60,110
16	Ss.	Harry Farnum, Cuba	33,256
16	Ss.	Mirita, Galveston	67,121
17	Ss.	E. V. R. Thayer, Philadelphia	66,427
18	Ss.	A. E. Watts, Cuba	68,607
18	Ss.	Panuco, Houston	25,154
21	Ss.	W. L. Connelly, Port Limon, C. A.	31,867
22	Ss.	Tamesi, Houston	20,256
27	s.	Madrono, Cuba	55,558
27	Ss.	Panuco, Tela, C. A.	25,287
28	Ss.	Mirita, Cuba	58,580
28	Ss.	Gene Crawley, Houston	32,189
29	Ss.	A. E. Watts, Tiverton	68,305
		Bunkers deliveries	10,563
		Total	940,237

By Mexican Gulf Oil Co.

Nov.	Rig	Vessel and Destination—	Bbls.
4	Ss.	Huguenot, Port Arthur	65,975
5	Ss.	Halsey, Port Arthur	63,901
5	Ss.	Fred W. Weller, New York	74,376
6	Ss.	J. M. Guffey, Galveston	18,606
9	Ss.	Gulfqueen, Galveston	60,788
10	Ss.	Devolente, Part Arthur	68,580
11	Ss.	Winifred, Port Tampa	18,168
11	Ss.	Huguenot, Port Arthur	67,827
11	Ss.	Halsey, Port Arthur	65,451
17	Ss.	Devolente, Port Arthur	68,853
17	Brg.	Connemaugh, Galveston	15,808
17	Brg.	Monongahela, Galveston	17,356
19	Ss.	Halsey, Port Arthur	65,585
22	Ss.	Huguenot, Port Arthur	65,585
28	Ss.	Gulfstar, Galveston	68,286
29	Ss.	Halsey, Port Arthur	65,606
		Bunkers deliveries	8,262
		Total	880,866

Mexican Eagle Oil Co., Ltd.

Nov.	Rig	Vessel and Destination—	Bbls.
1	Ss.	San Fraterno, Buenos Aires	*60,015
1	Ss.	San Fraterno, Montevideo	*23,266
1	Ss.	San Eduardo, Antofogasta and Iquique	*52,030
2	Ss.	San Dunstano, London	**67,869
3	Ss.	San Tirso, Habana, Cuba	*58,982
3	Ss.	Camden, Bocas del Toro	*58,533
7	Ss.	San Gaspar, Devonport	*91,660
10	Ss.	San Zotico, Penobscot River	*49,957
10	Ss.	San Zeferino, Philadelphia	*58,583
16	Ss.	San Silvestre, Avommouth	*35,450
16	Ss.	San Silvestre, Avommouth	**20,647
19	Ss.	Camden, Panama	*58,553
26	Ss.	San Teodoro, Avommouth	*57,381
27	Ss.	Silvershell, Land's End for Orders	*58,740
		Bunkers deliveries	89,962
		Total	841,727

By Transcontinental Pet. Co.

Nov.	Rig	Vessel and Destination—	Bbls.
12	Ss.	H. H. Rogers, New York	45,324
13	Ss.	Vistula, New York	67,033
13	Ss.	H. H. Rogers, New York	29,179
13	Ss.	G. H. Jones, Key West	55,584
14	Ss.	Vacuum, Paulsboro	58,584
23	Ss.	L. J. Drake, Jacksonville	50,871
24	Ss.	G. H. Jones, Baltimore	64,102
27	Ss.	W. C. Teagle, New York	31,899
28	Ss.	Thomas H. Wheeler, New York	56,840
29	Ss.	H. H. Rogers, Baltimore	73,717
		Bunkers deliveries	15,528
		Total	548,461

By East Coast Oil Co.

Nov.	Rig	Vessel and Destination—	Bbls.
3	Ss.	Sulphur No. 6, Freeport	27,230
3	Ss.	Sulphur No. 1, Freeport	18,387
9	Ss.	Tamiahua, Galveston	34,418

19	Ss.	Tamiahua, New Orleans..	83,279
20	Ss.	Sulphur No. 1, Freeport...	18,577
25	Ss.	Sulphur No. 6, Freeport..	27,670
25	Ss.	Sulphur No. 1, Freeport...	18,840
27	Ss.	Tamiahua, Galveston	68,306
29	Ss.	Bunkers deliveries	5,743
		Total	352,347

By Swiftsure Oil Co.

Nov.	Rig	Vessel and Destination—	Bbls.
5	Ss.	Swiftlight, Texas City....	60,230
10	Ss.	Swiftwind, Wilmington ..	69,312
16	Ss.	Freeport Sulphur No. 6, New Orleans	38,385
18	Ss.	Swiftsure, Fall River	55,831
30	Ss.	Swiftarrow, Fall River...	67,586
		Bunkers deliveries	17,962
		Total	309,306

By New England Fuel Oil Co.

Nov.	Rig	Vessel and Destination—	Bbls.
20	Ss.	Chuky, Tocopilla	62,018
20	Ss.	Agwimars, Fall River	60,236
26	Ss.	Toco, Tocopilla, Chile....	61,180
26	Ss.	Swiftarrow, Fall River....	67,585
30	Ss.	Bunkers deliveries	16,524
		Total	267,543

By The Texas Co. of Mexico, S. A.

Nov.	Rig	Vessel and Destination—	Bbls.
1	Ss.	Georgia, Providence	*45,569
5	Ss.	Reaper, Port Arthur.....	56,114
8	Ss.	Shenandoah, Port Arthur.	*31,950
8	Ss.	Shenandoah, Port Arthur.	22,090
13	Ss.	Pennsylvania, Port Arthur	*17,041
15	Ss.	Pennsylvania, Port Arthur	37,870
22	Ss.	Alabama, Port Arthur....	*25,607
22	Ss.	Alabama, Port Arthur....	1,009
		Bunkers deliveries	5,194
		Total	242,444

By Panuco-Boston Oil Co.

Nov.	Rig	Vessel and Destination—	Bbls.
4	Ss.	Samuel L. Fuller, Philadelphia	63,522
14	Ss.	J. C. Donnell, Philadelphia	83,022
17	Ss.	J. M. Cudahy, Philadelphia	64,537
		Total	211,081

By Interocean Oil Co.

Nov.	Rig	Vessel and Destination—	Bbls.
29	Ss.	Vaarli, Baltimore	53,672

By Pierce Oil Corporation

9	Ss.	Mexicana, Texas City.....	*19,497
21	Ss.	Mexicana, Texas City	*19,597
		Total	39,094

By U. S. Mex. Oil Corporation

Nov.	Rig	Vessel and Destination—	Bbls.
16	Ss.	Caloria, New Orleans.....	36,557

By National Petroleum Corporation

Nov.	Rig	Vessel and Destination—	Bbls.
1	Ss.	Dannedalke, New Orleans.	36,216
13	Ss.	Dannedalke, New Orleans.	36,690
16	Ss.	Swiftsure, Fall River....	55,832
25	Ss.	Dillioyn, New Orleans....	60,533
28	Ss.	Dannedalke, New Orleans	36,394
		Total	225,665

FROM PORT LOBOS

By International Petroleum Co.

Nov.	Rig	Vessel and Destination—	Bbls.
7	Ss.	Fred W. Weller, New York	29,499
8	Ss.	James McGee, Baltimore..	30,308
9	Ss.	Trontolite, Montreal	64,230
13	Ss.	Muskogee, Montreal	66,646
14	Ss.	Gedania, New York	13,524
14	Ss.	Vistula, New York.....	28,911
15	Ss.	H. H. Rogers, New York.	27,128
25	Ss.	A. C. Bedford, New York.	10,451
25	Ss.	Walter Jennings, New York	106,358
28	Ss.	James McGee, New York..	30,416
28	Ss.	F. Q. Barstow, New York.	21,437
29	Ss.	W. C. Teagle, New York.	75,082
30	Ss.	H. H. Rogers, Baltimore.	26,324
		Total	530,314

By Cia. Petrolera del Agwi, S. A.
(Atlantic Gulf Oil Corporation)

Nov.	Rig	Vessel and Destination—	Bbls.
6	Ss.	Agwisun, Boston	71,569
8	Ss.	Agwimex, Boston	88,575
10	Ss.	Agwiworld, Baltimore ...	71,205
17	Ss.	Agwihavre, Baltimore ...	90,614
29	Ss.	Agwiworld, Baltimore ...	71,702
29	Ss.	Agwimex, Boston	90,066
		Bunkers deliveries	25,619
		Total	509,350

By The Texas Co. of Mexico, S. A.

Nov.	Rig	Vessel and Destination—	Bbls.
4	Ss.	Virginia, Bayonne	*61,636
8	Ss.	Texas, Port Arthur.....	50,192
8	Ss.	Texas, Port Arthur.....	**17,327
11	Ss.	Alabama, Key West	*26,627
15	Ss.	Reaper, Bayonne	*58,732
16	Ss.	Shenandoah, Port Arthur.	54,981
16	Ss.	Shenandoah, Port Arthur.	**14,810
26	Ss.	Shenandoah, Craney Island, Va.	*60,699
		Bunkers deliveries	13,287
		Total	358,291

By Cortez Oil Corporation

Nov.	Rig	Vessel and Destination—	Bbls.
17	Ss.	J. C. Donnell, Philadelphia	21,744
19	Ss.	San Lorenzo, Baltimore...	109,936
25	Ss.	H. L. Pratt, Philadelphia.	18,012
		Total	149,692

By Island Oil & Transport Corporation

Nov.	Rig	Vessel and Destination—	Bbls.
13	Ss.	Dillwyn, New Orleans....	65,390
18	Ss.	W. B. Thompson, New York	67,799
		Total	133,189

By Transcontinental Petroleum Co.

Nov.	Rig	Vessel and Destination—	Bbls.
26	Ss.	F. W. Weller, New York..	106,861

FROM TUXPAM

By Mexican Eagle Oil Co.

Nov.	Rig	Vessel and Destination—	Bbls.
3	Ss.	San Fraterno, Buenos Aires	*15,041
4	Ss.	San Felix, Portsmouth....	*17,393
19	Ss.	San Gaspar, Devonport....	*11,833
		Coastwise deliveries	**22,609
		Coastwise deliveries	297,138
		Bunkers deliveries	81,822
		Total	445,836

NOVEMBER SUMMARY

From—	Bbls.
Tampico	10,000,270
Port Lobos	1,786,517
Tuxpam	445,836
Total, November, 1922.....	12,232,623
Total, November, 1921.....	17,117,607
Decrease, November, 1922.....	4,884,984

DIVISION OF MOVEMENT

To—	Bbls.
United States	9,080,280
United Kingdom	636,300
South America	450,350
Cuba	447,159
Mexican Coastwise	319,747
The Continent	298,915
Central America	140,449
Panama	121,767
Canada	64,230
Mediterranean Ports	61,702
Bunkers, to balance	611,724
Total	12,232,623

*Denotes topped crudes. **Denotes distillates.

2 ENORMOUS GUSHERS IN VENEZUELAN FIELD

CHATHAM, Ont., Dec. 27.—A cable message received by W. J. Henderson, secretary of British Controlled Oilfields (Ltd.), confirms the report of an important oil strike made by the Royal Dutch-Shell Co., on the property of the Venezuela oil concessions in the Buchivacoa district of Venezuela, adjoining the holdings of the British Controlled Oilfields, (Ltd.). According to the cable, since December 14, No. 1 well has flowed over 90,000 bbls. a day. The well is about 1,800 feet deep and the oil is said to be of 23 to 24 gravity. Two other wells have since been completed, one of which is probably equal in production to No. 1. British Controlled Oilfields, (Ltd.), now have under construction a pipe line through which oil from its developed field in western Buchivacoa will be delivered to tankers at its deep sea port of Altagracia; and additional construction will be undertaken as rapidly as the developed production justifies it.

In co-operation with the Venezuelan subsidiary of the Standard Oil Co., extensive drilling is being carried on in eastern Buchivacoa, and the Central Buchivacoa fields will be developed by the Royal Dutch-Shell Co. In each of these fields the development arrangements with British Controlled Oilfields (Ltd.), are on a royalty basis. British Controlled Oilfields (Ltd.), also has a considerable stock interest in the Venezuela Oil Concessions, (Ltd.).

STATISTICS

The following table shows the runs and shipments by the various pipe lines in the oil fields of New York, Pennvylvania, West Virginia, Kentucky, Tennessee, Ohio and Indiana:

Runs, December 1 to 24, Inclusive

National Transit Co.	124,311
South West Pa. Lines	63,395
Eureka P. L. Co.	299,773
Buckeye P. L. Co. (Lima)	79,677
Buckeye P. L. Co. (Macksburg)...	168,123
Cumberland P. L. Co.....	248,551
Indiana P. L. Co.	8,257
New York Transit Co.	7,532
Tide Water Pipe Line (Pa. Oil)...	100,770
Tide Water Pipe Line (Ill. Oil)...	18,159
Total	1,118,548
Average runs	46,651

Shipments, December 1 to 25, Inclusive

National Transit Co.	284,384
South West Pa. Lines	221,823
Eureka P. L. Co.	109,585
Buckeye P. L. (Lima)	62,410
Buckeye P. L. Co. (Macksburg)...	171,868
Cumberland P. L. Co.....	83,915
Indiana P. L. Co.	617
New York Transit Co.	11,432
Tide Water Pipe Line (Pa. Oil)...	285,540
Total	1,231,574
Average shipments	49,263

CANAL KEROSENE BIDS

The Panama Canal has requested bids covering its requirements of 150,000 gallons of kerosene at either Cristobal or Balboa, Canal Zone. Bids will be opened January 8. For bid forms and specifications, address the General Purchasing Agent of the Panama Canal, Washington, D. C.

The Hardenburg Underreamer

IS mechanically perfect in design and construction. Built to withstand the "toughest going" encountered in the hardest formations. Reputable drillers are using the Hardenburg Underreamer with great success throughout the oil country. It has the three most essential requirements of a successful reamer—

—Safest
—Strongest
—Most Durable

Note the strength built into the reamer, also the simplicity. Each cutter is controlled independently by individual springs—an exclusive Hardenburg feature. The cutters are made of Crescent Bit Steel, extra long with ample metal for redressing—easily and quickly removed.

For your next reamer job get a
HARDENBURG

We are Sales Agent in Oklahoma for these nationally known trade marked products.

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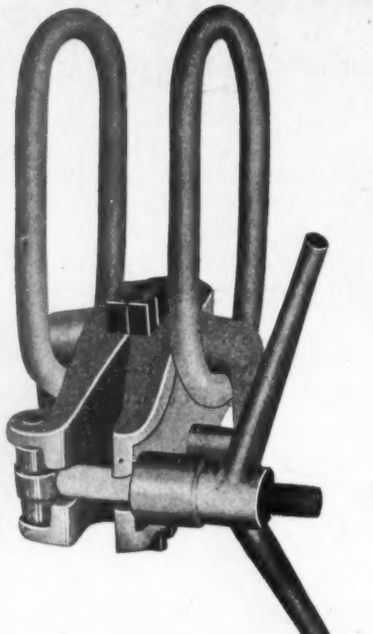
Arbon Interchangeable Wire Line Clamps



The cheapest and most durable clamps on the market. Equipped with interchangeable bit steel liners.

PRICES

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Buckwheat Cakes *and* Real Maple Syrup

Remember those good old days in Pennsylvania with Butler County buckwheat cakes smothered in Warren County Maple Syrup!

"Those Days are Not Gone Forever"

You can have that same kind of maple syrup, "just like mother used to serve," delivered right to your door in quantities of one gallon or more, each carton containing one gallon in four quart bottles. My farm in Warren County, Pa., is producing the old-time maple syrup.

Satisfy That Desire

which has lain dormant so long. The price is $5 a gallon. Stick a $5 bill or your check in an envelope and shoot it along with your order to

John L. Huff, Meadowbrook Farm

Akeley, Warren County, Pa.

A recipe for real buckwheat cakes with every carton

HEAT TREATMENT METHODS DESCRIBED

Practical Talk on Some Modern Methods of This Feature of Petroleum Equipment Business Given by Metallurgist at Group Session of American Petroleum Institute Convention

The following paper was read by S. D. Tuthill, metallurgist for the Lucey Manufacturing Corporation, on December 7, before the Group Session of the American Petroleum Institute, at its third annual convention, in St. Louis:

In the designing and manufacturing of oil well equipment today, heat treatment has become such an important factor that without it engineers would be hopelessly lost. Manufacturing or machine departments could not hope to meet the demands for production and the finished product in nine cases out of ten would be of very little commercial value.

This age is beginning to demand that engineers design lighter and sometimes more complicated machinery and tools, which must perform more efficiently than former ones—it demands that the steel manufacturers experiment with and produce new steels that are capable of yielding the properties demanded by engineers and the manufacturing departments—and then while we might go on indefinitely naming the demands made upon everybody, it is up to the heat treater to see to it that all the effort which the machine department has put forth in making new tools, fixtures, etc., and all the endless trials which everybody, including the steel maker, has to contend with up to the point where the machine parts were ready for heat treating, not counting the costliness of all these things, are not all wasted energy and money. Without a doubt the World War, through which we have passed, with its demand for aeroplanes, trucks, better guns and shells, and more of them, has been more instrumental in gaining for heat treatment the industrial prominence which it holds today than any other thing.

Heat Treater Important

In the manufacturing of oil well equipment, as in automobile and munition industries and countless others, where parts are made which later in service are subjected to severe stresses, the part which the heat treater plays is an all important one. Some hammer drills, for instance, weighing in all 100 pounds, strike 1,500 blows per minute with a hammer weighing 8 pounds upon a rock drilled steel with a 1⅜-inch bit, which drills 11 inches per minute in hard granite are subjected to very severe impact and vibratory as well as torsion stresses. Anyone, even those not familiar with oil well equipment, can readily imagine what would happen to such equipment if it were not made with the correct material and properly heat treated, but all of us are familiar with the reason why machine parts are heat treated, and it appears to me that what we are more interested in is how the heat treatment is applied.

First of all, we must have the parts of the material from which they are made to heat treat. This may be in the form of forgings or castings, they may have been machined from bar stock or from parts received from the mill. These may be sent to you for heat treatment after which the parts may be finished from the heat-treated bar. There should be some method of inspection employed whereby all the castings and stock received and the forging made could be thoroughly inspected for physical properties, chemical composition and defects. The labor wasted from finished parts made from either the wrong or defective material which would have been cast aside if it were inspected, usually more than pays for the cost of the inspection.

Method of Designing New Equipment

It might not be amiss here to describe the method used by this corporation at its Chattanooga and Houston plants in designing new equipment. After all designs have been completed these in turn are passed over to the metallurgical department for chemical and physical specifications. From here this information is passed to the purchasing department, which in turn purchases all raw material to these specifications. At the same time the inspection department receives the same information so that they may be governed accordingly when the product is finished. Analysis is made of all raw material and finished products, a report being turned over to all of the above mentioned departments so that they may see that these specifications have been met with. This method has eliminated quite a little trouble of imperfect material in the field.

Here we have an endless chain of checking defective material. The inspection department at both plants gives each steel part a number, which works out most effectively in tracing defective material. This number can be transferred through the various stages of machining or to the finished part so that at any time, without consulting job records, one can readily see what material the part was made from. This also avoids controversies arising in the event of parts being returned after having seen service.

The selection of material for machine parts is governed by the size and shape of the piece, the requirements to be met in service, whether the heat treatment necessary to produce the physical properties in the ultimate part from the steel selected could be particularly applied on account of the shape and size of the part, and whether the ultimate cost of the part would be prohibitive. For certain parts there may be several different kinds of steel that would serve equally as well if given suitable heat treatment. For instance, if fairly uniform and generous of cross sections which must have a hard wearing surface and which would meet with only slight stresses in service, same could be made from tool steel or any straight carbon or alloy case hardening steel and in this case the question of cost of the steel and heat treatment could decide the selection. There are other parts, however, which must resist severe shocks or strains in service and abrasion for which possibly only one grade and analysis of steel would satisfactorily meet the requirements.

Treatment of Bits

Here I call your attention to the fishtail bit. After making an extensive study of methods used in hardening the bit in the field, I have found that approximately 85 per cent of these bits have been overheated. The writer also has found excellent steels that have been abused by the field blacksmith. The method of treatment used is to heat about 4 inches of the blade of the bit and quench in either water or oil, whichever is most convenient. I also have seen bits brought up to such high temperatures that the points were at a white heat, whereas the middle of the blade was a cherry red. Here the manufacturer has been blamed for the production of poor bits and has taken undue criticism for improper heat treating methods in the field.

After making numerous tests on the chemical and physical analysis of different steels submitted by the different mills, we have adopted a chrome steel that is particularly adapted for implements requiring end heats, extremely hard ends and face (not brittle), together with a strong, tough core and shank.

About 4 inches of the bit is carefully heated in the fire (common blacksmith forge) to the proper temperature—usually about 1,500 degrees Fahrenheit. For field practice this temperature is determined by the use of a horseshoe magnet, that is, the steel will lose its magnetism when the hardening temperature has been reached. Higher temperatures should not be used in any case. Any scale should

be carefully and quickly brushed off before quenching. This bit is then removed from the fire and quenched in water or oil.

Precautions in Heat Treatment

The following precautions are to be observed in heat treatment of any bit:

1. Lower vertically in order to obtain an equal hardness on both faces of the bit.
2. Do not quench to a greater depth than 4 or 5 inches.
3. Do not move the bit or splash the heated parts with water.
4. Allow the steel to remain in water until cold—generally over night.
5. Splashing the heated part of the bit with water has a tendency to draw the temper of the face.
6. Immersion to a greater depth than 3 or 4 inches is apt to give a soft bit.

With each order of bits sold by this corporation we send out with the bits a horseshoe magnet and instructions as to how these bits should be heat treated, as we have found, through experience, that it is impossible to furnish a foolproof steel that will receive the abuse that it is given by the field blacksmith.

The greatest evil that the writer has witnessed is in the heating of a furnace so designed as to allow no direct play of the flame on the material to be hardened. A description of this furnace is as follows:

A furnace for dressing bits shall be so designed and constructed as to be portable, accessible for repairs and renewals of refractory materials; heating chamber shall be that of the radiation type, one in which the steel may be heated thoroughly and uniformly by radiation. The process of combustion of the fuel gas or oil shall take place in a compartment separated from the steel heating chamber by a bridge wall, and the products of combustion shall be directed to outlet along the arch of the steel heating chamber in such a manner as to distribute the heat evenly and radiate it to the bit on the hearth.

There shall be no preheating space embodied in this furnace, one in which the temperature is comparatively low when that in the main heating space is high or just suitable for forging.

In addition to the special furnace for dressing bits, the use of a pyrometer and a horseshoe magnet is to be encouraged, as even with an ideal type of furnace the steel can be rendered useless by ignorant or careless manipulation. Some form of optical pyrometer appears to be most suitable for field use when heating to forge and an ordinary horseshoe magnet is convenient for use when heating for hardening.

Tool Joints

After making field investigations on tool joints and finding that complaints came in on every known make, it was found in a number of cases that wear by abrasion was the main defect. A number of cases also were reported where the tool joints split up the side of the box end. In tracing these defects back I found that the specifications of the steel and the forging of the joint were at fault. Indications were that the steel had been burned, causing a line of demarcation the extreme length of box end of the joint. The writer immediately set out to find a material that was best suited for the work to be done. Samples of steel were submitted by various steel manufacturers, and as result of these tests we have found that the chrome joint far surpasses any steel that has ever been tried. Results gained by the use of this chrome joint are approximately one-third longer life with a very hard case and tough core. All joints are given cyanide treatment. Numerous experiments have shown that it is not advisable to use nickel due to the fact that it causes extreme brittleness in the threads when heat treated; however, the method of heat treatment may be at fault also.

Line Shaft

Investigations carried on in regard to line shafting have been due to the number of complaints that have been made. The defects seem to be the bending of the shaft, or sometimes a break. Analysis of one defective shafting found in the Gulf Coast fields and which failed under ordinary working conditions is as follows:

Silicon	0.315
Sulphur	0.089
Phosphorus	0.090
Manganese	0.262
Carbon	0.104

Microphographs show this steel extremely high in phosphorus-sulphide.

This line shaft was completely snapped under ordinary drilling conditions.

Here the writer wishes to call your attention to the fact that we have recently increased our line shafting to 0.30 to 0.40 carbon. This gives us a maximum stiffness.

Some heat treatment should be applied to all forgings whether they are machined or not, such as annealing above the critical, or quenched above the critical and drawn to somewhere under the critical (the exact method of heating and cooling, of course, depending upon the grade of steel). In case of forgings, which after machining need no hardening treatment, a treatment necessary to bring out the requisite physical properties in the ultimate part could be applied to rough forgings unless they were of considerable size.

While it has been found good practice to thoroughly anneal in the rough and apply the finish or "full heat" treatment after the excess material has been machined off, in a case of those forgings which after machining require hardening the heat treating of them refines them (or normalizes them, as some like to call it) to the extent that the machining operation can be speeded up and the parts when they are hardened are less susceptible to distortion. The distortion in hardening of parts made from billet stock can be considerably lessened by heat treatment after they have been partly machined.

Hardening, Annealing, Tempering, Etc.

Heat treatment takes in numerous methods of hardening, annealing, tempering, toughening, and normalizing; in fact, anything in the nature of an operation where temperature is relied upon to produce certain physical changes in the structure of the steel.

Hardening, as we already have learned, consists of heating a piece of steel to a point in or beyond its critical or transformation range and cooling it either slowly or rapidly. The case may require oil, brine or fresh water; or, as in the case of high speed steel, possibly air. (The word "hardening" when used throughout this paper is used in the term of shop language and means the rendering of steel in a condition, or with a hardness, that resists the action of a file.)

The manner in which a piece is heated, the temperature it is heated to, and the way in which it is quenched depends upon the kind of steel the piece is made from, the size and shape of the piece and the properties required in the finished article.

To the average heat treater there are three distinct kinds of steel—tool steel, case hardening steel, and the so-called oil tempering steel. Tool steels are those which, due to their chemical composition, possess the innate properties for hardening when simply heated and quenched within or above the critical range. In this class are those such as the straight carbon above 0.60 and those with the same or a little lower carbon content, containing percentages of chromium, vanadium, tungsten, or molybdenum. The case hardening steels are those which, as the name implies, harden only to the depth of a case from which the exterior is carburized. These steels contain initially less than 0.30 carbon, and for some purposes depreciate more of alloying elements, such as chromium, nickel, vanadium, tungsten and molybdenum. The oil tempering class takes in the steels of medium carbon content (between 0.30 and 0.60), with or without various proportions of alloys. These are used for purposes where great elastjcity combined with ductility are essential.

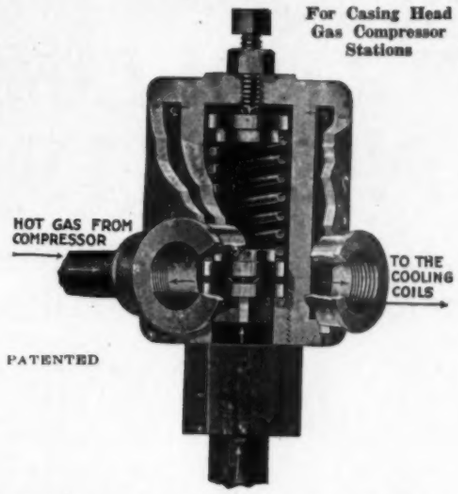
There are many methods of applying

(Continued on page 100)

PARKERSBURG MACHINE CO
PARMACO
PARKERSBURG W VA

PARMACO SAFETY VALVE

High Pressure



The PARMACO High Pressure Safety Valve eliminates trouble caused by frost collecting around the valve. Hot gas from the high cylinder passes around the valve creating heat that eliminates freezing. Literature and prices upon request.

Manufactured by

PARKERSBURG MACHINE CO.
PARKERSBURG, W. VA.

Oil Field Service

THIS service consists of drilling and equipping wells and leases. Righting bad holes and fishing for operators and drilling contractors. Developing and managing oil and gas properties. Determining proper casing points and weights of casing to use. Removing water from flooded wells. Renovating old wells.

Practical and confidential scouting. Geological and engineering reports. Surveying and mapping. Surface and sub-surface contouring. Appraising oil and kindred properties. Estimating the present worth and future prospects of stock, bond and note issues of oil and kindred companies.

Supplying commercial leases, also acreage for drilling, located on carefully selected structures in the proven, semi-proven and wildcat fields of Kentucky, Oklahoma and Texas.

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Inter-Southern Bldg., Louisville, Kentucky

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PETROLEUM PRODUCTS
Car Lots — Train Loads
What You Want — When You Want it
ADMIRAL
PETROLEUM COMPANY
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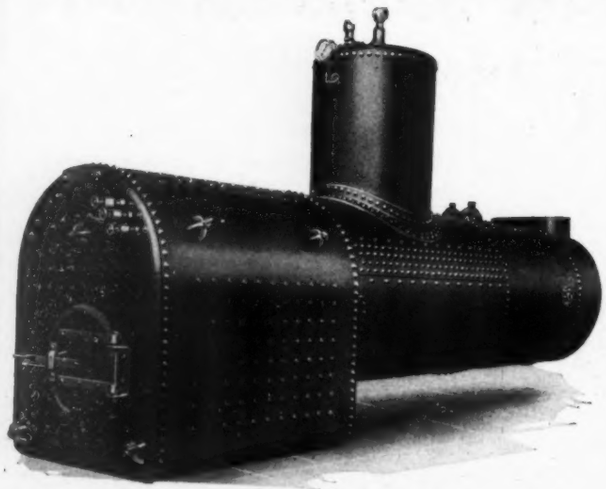
Sistersville A. S. M. E. Code Boiler



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Oil, Gasoline and Chemical Storage
Capacities 4,400 to 20,000 Gallons
High and Low Pressure Accumulator
Bolted 100 to 2,000 Barrels
Electric Welded, 40 to 100 Barrels
Steel Plate Construction.

Prices and Catalog mailed upon application.

Sistersville Tank & Boiler Works
Office and Works, Sistersville, West Virginia

STUDY OF PROBLEMS OF DEEP DRILLING

J. Edgar Pew Tells the American Petroleum Institute of the Difficulties Under Which Mid-Continent Operators Work With the Ever Increasing Depths That Must Be Explored in the Search for Oil.

J. Edgar Pew, vice president, Sun Co., who has done as much for standardization of oil field equipment as any man in the industry, presented to the recent meeting of the American Petroleum Institute an account of the activities of the Mid-Continent Oil & Gas Association regarding pipe for deep well drilling. Mr. Pew covers the subject with the thoroughness with which he does everything, and his address is given here in its entirety.

"Deeper drilling has produced new problems for the oil producer. Because of the troubles the operators in south Texas were having in successfully completing their deep, rotary-drilled wells, and, to a less extent, those of the north Texas cable tool operators in their deeper drilling, most of which were casing troubles, the Texas-Louisiana Division of the Mid-Continent Oil & Gas Association appointed a committee to investigate and report on the question of the casing used; and in making its recommendations, to endeavor to suggest a proper casing method for this deeper drilling; and also to suggest a better standardization of all casing used.

"It is the work of this committee I am asked to report on to you.

"The committee has had numerous meetings, and has attempted to make its investigation more thorough and general by co-operating with members from California, Wyoming, Oklahoma, and also with representatives of the various pipe mills and supply companies. The committee has not completed its work, nor made its final report, but has made much progress.

"In discussing its work, together with the subject given me, which is: "Mid-Continent Oil & Gas Association's Activities Regarding Pipe for Deep Well Drilling," I shall endeavor to show the conditions existing, the need for other casing than is now available, and also the need for standardization.

"I will consider the question of the amount and strength of casing, of sizes, threads, clearances, couplings, etc. My subject has nothing to do with the chemical analysis of the material used in making pipe, which is being treated in another paper to be read at this institute meeting.

Changes in Drilling Methods

"A few general observations are necessary to better understand oil field conditions.

"The methods of drilling and operating of oil wells have changed very little in the past 30 years. It is true that the rotary process of drilling as applied to oil wells is new within that period, and is made necessary on account of the softer formations found in the newer fields. Aside from this departure, probably no other industry requiring the enormous, and always increasing, investments, would have permitted itself to continue using original methods, and without any marked improvements in these methods as applied to the operations as a whole.

"New conditions in some fields have compelled some departures from the recognized standards of operations arising out of a total inability to get results otherwise, but these departures, generally taken with reluctance and then only after heavy losses in the efforts to use the recognized methods at hand, are usually into a field of experiment and further losses before arriving at any solution of the problems.

"Such was the bringing of the rotary process into use in making oil wells. Much money had been lost in trying to sink wells in these softer formations with the use of cable tools, when the rotary, used in the Gulf States for drilling water wells, was suggested, and as far as I know, was first used at Corsicana, Texas, in about 1898 to 1900. It came into general use at Spindletop in 1901. The use of the rotary in its first years was fairly satisfactory within the known and proven oil field limits, but as a method of drilling a wildcat test, was very unsatisfactory.

Few Changes in Rotary Drilling

"The original Lucas well at Spindletop, which is claimed to have made over 50,000 bbls. of oil per day, (although this well flowed wild for about eight days, it never did flow into tanks), was actually drilled well into the sand and the pipe was being pulled from the hole, without the owners or drillers knowing they had an oil well.

"It is true that a 50,000-bbl. well might easily have been overlooked, although drilled into the oil-bearing sand, this condition being made possible only by rotary drilling; but whether or not, out of all the hundreds of wildcat rotary drilled wells in the coast country within the 10 years following, other developments of importance were overlooked, no one can tell.

"There was practically no change within that period of time, in methods of rotary drilling, although since 1911, with the introduction of the core-barrel, great improvements have been made and greater certainty of results obtained.

"The pumping system and the use of tubing and rods for the lifting of oil from wells has been improved but little in 30 years, although the amount of oil produced annually from 1900 to 1922 has increased about 880 per cent.

Same Type of Cable Tools

"The tools used in cable well drilling are of the same type as used 30 years since, with a few additions in fishing equipment, and in labor-saving devices, these latter not saving labor costs to the employers, but rather only giving the employes more time for reflection.

"The purpose of this paper is not to discuss drilling and operating of wells, or methods best suited for the same, but I refer to these only as illustrating, if possible, the minds or habits of the average oil producers, which is to take the methods and material handed down to them and use the same, whether best suited to their requirements or not. The reason for this is apparent. The individual operators are so numerous and their work so scattered, they have to use equipment that is available, and use men more or less skilled in its use, and have but little opportunity to depart from the beaten path.

"This does not tend to progress in methods, and as the business of producing oil is always one of rapidly changing conditions, it would be difficult to estimate even approximately the enormous losses to the producer because of his efforts to drill his well or wells with material often unsuited to his particular condition, or, if he does know what he should use, from his inability to obtain the same; and there is also a greatly increased cost in the material he does use.

Casing Requirements of Deep Wells

"There were reported completions of 2,300 wells in the United States in the month of September of this year, and there were about 2,100 in October, or at the rate of about 25,000 for the year. Of these, approximately 16,000 are west of the Mississippi River, and the great majority in territory requiring new tubular goods.

(Continued on page 105)

This New Booklet

contains the most recent available information and statistical data regarding the eighty

Independent Oil Companies

whose securities are actively traded in, including the latest financial reports and descriptions of the properties.

On account of the many developments affecting oil securities values which have taken place in the petroleum industry during the year 1922, the booklet should prove of special interest and value to investors at this time.

Copies will be supplied free upon request for Booklet N-23

Carl H. Pforzheimer & Company

Dealers in Standard Oil Securities

25 BROAD STREET, NEW YORK

FUEL OIL SCARCE; PRICES UP, IN OIL CITY DISTRICT

OIL CITY, Pa., Jan. 1.—Fuel oil 36-40 is becoming very scarce in this section. There is plenty of the lower gravity, but very little of the higher and as a result of this fact, and an increasing demand there has been an increase in fuel oil prices during the past week. One reason for the scarcity of fuel oil is the fact that many refineries are now equipped with cracking plants which use the higher gravity fuel oil.

Following firmer prices in the western area, there has been a stiffening of gasoline prices in this refining area. Gasoline is believed by the majority of the refiners in this section to have passed its low price mark, and now to be definitely on the up-grade.

Buying of kerosene has slumped quite a bit and this product is now weaker than it was a week ago.

Neutrals of higher viscosity are holding their own in splendid shape and there has been no change in cylinder stocks and filtered goods.

The refiners of northwestern Pennsylvania now see brighter times ahead and believe that most of their troubles will be solved with the beginning of the motoring season of 1923.

AZTEC OIL CO. ANNUAL MEETING

The annual meeting of the stockholders of the Aztec Oil Co., was held on December 22, 1922, at which time the following board of directors was named: W. H. Gray, Ira E. Cornelius, T. T. Bland, L. A. Carleton, R. A. Welch, L. I. Wood, R. H. Harman. At a meeting of the board of directors held on December 26, the following officers were elected: W. H. Gray, president; Ira E. Cornelius, first vice president; L. A. Carleton, second vice president; L. I. Wood, secretary-treasurer.

CUMBERLAND STOCK DIVIDEND

BOWLING GREEN, Ky., Jan. 1.—The Cumberland Pipe Line Co. on December 28 declared a 100 per cent stock dividend and increased its capital from $1,500,000 to $3,000,000. The accumulated surplus was distributed to stockholders in the form of additional capital stock at a ratio of one additional share, par value, $100, for each existing share of the same amount.

NOTHING WASTED HERE

OIL CITY, Pa., Jan. 1.—The new charcoal plants, which have been put in operation by the Pennsylvania Gas Co., and the Mars Co., in this section of the State, are now extracting about 4,000 gallons of gasoline a day from the natural gas. This is in addition to that taken from it by the oil process through which the gas passes before reaching the charcoal plant. There are two of these plants which were only recently completed. The one at Roystone Station, is making 2,000 gallons a day, and the one at Strong Station practically the same amount.

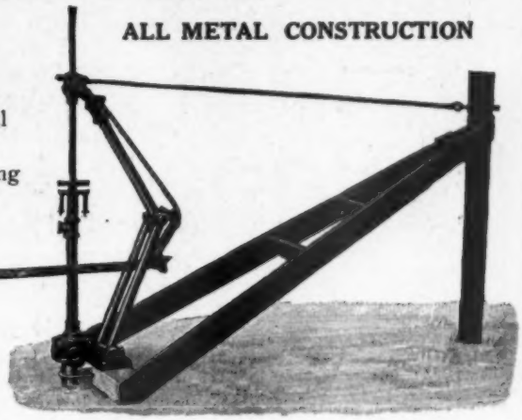
CHAMPLIN BUYS STRING OF FILLING STATIONS

ENID, Okla., Dec. 27.—The Champlin Refining Co., of this city, has purchased the entire interests of the Goodwill Oil Co., jobbers, with a string of filling stations operating in northwest Oklahoma. The purchase marks the beginning of the Champlin Co. entering the retail distribution of refined products on a large scale. The company now operates one of the largest refineries in the State. A. H. Holland, sales manager for the Goodwill Oil Co., will continue in that position for the new owner, which will operate the filling stations under the same name.

Lightning Oil Well Pumping Jacks

ALL METAL CONSTRUCTION

Have shown remarkable results in actual service and surpass anything in the field.



Exclusive Features

Variation of stroke from 9 to 30 inches.
Adjustment of stroke made by turnbuckle.
Straight lift on polish rods.
No agitation of oil by cutting.
Best jack on the market for wells making water.

OIL WELL SUPPLY DEPT.

KANSAS CITY HAY PRESS & TRACTOR CO.

Kansas City, Mo.

As to Petroleum Products—

Give us the facts about your requirements. Furnish us with a basis for constructive service and suggestions.

Maintain a Business Relationship

Lest any one doubt that this is good economics, we point out that those who once begin buying on this plan, seldom go back to the old competitive basis.

We Market All Petroleum Products

The Industrial Petroleum Corporation

Lytton Building, Chicago, Illinois

Acme Improved Weldless Steel Sucker Rods

LETTERS PATENT GRANTED DEC. 31, 1912

Better than ever, with square upset. No possible chance to swivel. 100,000,000 feet in use.

Insist on Having The Acme

If they cannot be obtained at your store, write us direct.

Acme Pull Rods with Grip Couplings.

Acme Gas Engines and Pumping Powers.

J. and H. Straight Line Pumping Jacks.

All Kinds of Surface Equipment

The S. M. Jones Company
PATENTEES AND MANUFACTURERS
Toledo, Ohio

Jarecki Oil and Gas Well Supplies

We are manufacturers of:

Fittings — Brass, Malleable and Cast Iron.

Iron Body Valves — All Kinds.

Jarecki Gate Valves — Iron, Brass and Semi-Steel.

Jarecki Cast Iron Working Barrels.

Snow Plunger Pumps.

Oil and Gas Well Supplies—All Kinds.

Pipe Threading Machines and Tools.

Jarco Wire Line and Pumping Outfits.

Jarecki Pump with Sand Trap.

We are agents for and sell:

Nagle Steam Engines and Boilers.

Republic Tubular Goods.

Byers Iron Pipe.

Fitler Manila Cables.

Wire Drilling Lines.

Genuine Acme Sucker Rods.

Jarco and Eureka Rubber Belt.

Snow Steam Pumps.

Drilling Machines.

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We sell everything used and needed about an Oil or Gas Lease
Send us your specifications

JARECKI MANUFACTURING CO.
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Branch Offices: St. Louis, Mo. Pittsburgh, Pa. Tulsa, Okla.
Eastland, Tex. El Dorado, Kans.

Branch Stores in all Principal Points in the Oil and Gas Regions

HEAT TREATMENT METHODS DESCRIBED

(Continued from page 97)

heat treatment in modern plants where "heat treatment" is looked upon in the light of its present importance. The method of handling for heat quenching, etc., is really worked out to meet the plant conditions.

Selection of Equipment

As the success of a heat treating plant depends upon the uniformity of its product, and the obtaining of a uniformly heat treating product is controlled largely by the tools with which the plant is equipped and the ability of those designated to use those tools, serious consideration should be given to the selection of equipment and the type of human element employed to operate it. While the tools of a heat treatment plant, such as furnaces, quenching baths, and machinery necessary for the operation of each, pyrometers, pots, boxes, etc., are of inestimable value, too much emphasis cannot be laid upon the factor of human element in heat treating operations, or the importance of the type or intelligence of the man on the job. Even with the very latest systems of pyrometry and temperature control, automatic and continuous furnace and quenching baths, the man on the job really decides the issue.

The research work that we have recently completed on jar steel is very surprising indeed. We have found that it is not practical to weld jars containing high and low carbon contents. This practice has been carried on by practically every manufacturer of oil well equipment. It is very true that some of these jars have stood up remarkably well. We have found upon actual experiment that by making jars from 0.35 to 0.45 carbon that we have a steel that will make a much better weld than of high and low carbon. Common practice of welding high and low carbon jars is not to be recommended, due to the following facts:

The steels the writer has experimented with were found to have too wide a critical range. For example, when the high and low carbon steels are brought up to the welding heat, the high carbon steel is, in nine cases out of ten, burning the steel, leaving the low carbon steel in perfect condition and the high carbon imperfect. Microscopic examinations show that the high carbon steel has been burned in welding.

Heat treatment of these jars after they are completed consists of the following factors:

After the jar has passed through the manufacturing process and has been completed and cooled it is then brought up to the critical temperature and quenched in oil. Here we have a jar that will withstand a large amount of impact.

The writer has not attempted to give definite analysis, for a number of reasons. First, because we have our own ideas in regard to the quality of material that it takes for certain products. However, I do not mean to leave the impression that these analyses are a secret, for they are not. This information is open to anyone who is willing to cooperate to better the material that goes into oil well equipment and we are always ready and willing to give such information that will be of benefit to anyone concerned.

This research work represents quite a large expenditure of money, of which the producing companies will receive direct benefit. However, I am inclined to believe that we will, in the future, go strictly to alloy steels, which means more money for raw material, and when heated properly, a better product. Take, for example, a tool joint selling today for $50, made of simple steels, and compare it with a joint that will give practically double the life, made of alloy steel at an increase in price of $12. Here you can see the slight increase in cost is paid in direct results.

The final step in solving the solution of this problem of better equipment remains directly up to the producing com-

NO-CO-RO

What is NO-CO-RO? It is our trade name registered in the U. S. Patent Office, meaning NON-CORROSIVE. It is a special Alloy, Non-Corrosive Steel Ball and Seat, manufactured ONLY by NORRIS BROS., Inc. It is the most perfect Ball and Seat on the market today. This is not guess work. Results obtained PROVE OUR CLAIM. Time and again we have placed them in wells where Tool Steel Balls and Seats lasted but two or three WEEKS and have obtained from SIX to EIGHTEEN MONTHS' service.

Each and every one of our Balls and Seats are perfect in material and workmanship. You won't have to look over a dozen to find a good one. They are ALL PERFECT. It is even unnecessary to inspect a NO-CO-RO Ball and Seat before putting same in the well. They are thoroughly INSPECTED THREE TIMES during the process of manufacturing and grinding in, by the latest and most approved tools and appliances and each and every Seat is guaranteed ABSOLUTELY PERFECT and to gve MANY TIMES the service of any other make of Ball and Seat.

You to be the judge of services obtained. We have never fallen down on our guarantee and we never will.

Manufactured Only by

NORRIS BROS., Inc.
Robinson, Illinois. U. S. A.

STEEL WORKING BARRELS

should be more than

SEAMLESS

HOUGH SEAMLESS STEEL WORKING BARRELS

Are uniform in physical properties and chemical contents.

THE INSIDE FINISH

is hard, which insures longer life against cutting sand—smooth, highly polished—means valve cups will last longer.

THE TUBES

are straight and true to size—accurate to diameter, gauge and wall thickness.

THE COUPLINGS

are of heavy design, threads properly aligned and concentric with the taper seat in the lower coupling which insures lower valve seating correctly.

UNIFORM DEPENDABLE HIGH QUALITY

Your dealer will supply you.

Look for the label.

THE CHARLES N. HOUGH MANUFACTURING CO.

"Where the Reliable Oil Well Supplies Come From"

FRANKLIN, PENNA.

OIL WELL SPECIALTIES

William H. Foster W. A. Reiter

FOSTER & REITER

CONSULTING GEOLOGISTS

19th Floor, Magnolia Bldg., DALLAS

Atlas Life Bldg., TULSA

SWAN UNDERREAMERS

AT YOUR SUPPLY STORE

BRIDGEPORT

"Pipe Always Follows"

panies. In order to meet the demands made upon the manufacturers we must have co-operation of everyone interested in this subject. Without this co-operation we are at a loss to know just what material is needed. Such co-operation means the untiring work of everyone concerned.

TELLS OF A PUMPING WELL SOUTH OF ROSWELL, N. M.

The following was published in the Roswell, N. M., Daily Record of December 22:

"The oil well of the New Mexico, Kansas & Texas Oil Co., located 55 miles south of this city, is still producing real oil daily. Yesterday from 15 to 20 bbls. of oil were pumped from this well and the pump was only worked a few hours in the afternoon.

"The oil is now being sold to the Artesia Utilities Co., at the well and the Illinois Producers Oil Co. has contracted for 8 bbls. a day to be used as fuel oil in the new well this company is starting across the Pecos River east of Artesia.

"The owners of the well are more enthusiastic than ever over the prospects of the well and are certain that it is a real producer. Because of the shallow depth of the well and the small cost of pumping even at 20 bbls. the well will pay large returns on the investment.

"The operators of the well are proceeding with caution at this time in pumping the well for the reason that it would be extremely dangerous to pump the oil out of the three sands, leaving them entirely unprotected. Were this done it might cause the sands to cave and ruin the well. For this reason the sands are allowed to remain flooded with oil. This is the explanation given by the owners and operators as to why they do not pump the well longer each day."

TESTING CENTRAL OKLAHOMA

OKLAHOMA CITY, Jan. 1.—Three wells in Oklahoma County are now definitely below the red beds and one is believed to have passed through the upper Pennsylvanian.

Charles Shaw is drilling at 8 feet in a gray lime at about 2,057 feet, 3 miles east of Jones. After holiday drilling was resumed Thursday.

The Garr Oil & Gas Co., drilling southwest, has set 10-inch casing on a hard lime at about 1,700 feet. Drilling was suspended at that depth until the arrival of a string of 8-inch from the company's yard at Yale. Geologists who have examined formation cuttings in the company's office, say that the bit is now in the lower Pennsylvaniain.

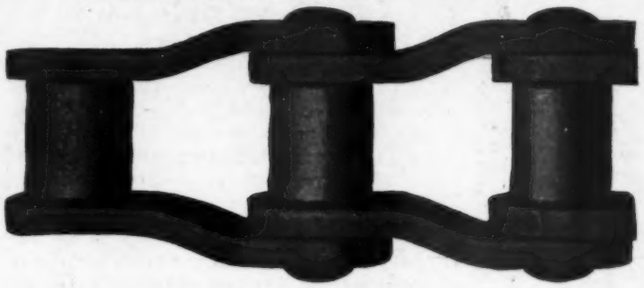
Southeast of the city, the Firestone Oil Co. is drilling at about 1,740 feet in a sand containing salt water. Twenty feet of this sand has been penetrated. This was the first water encountered below 1,000 feet. The 10-inch casing will be set at about 2,000 feet. W.F.K.

LARGE SUIT ENTERED

CASPER, Wyo., Dec. 30.—N. S. Williams and the Esch-Latios Oil Co. of El Paso, Texas, have entered suit for the possession of a tract of land in the Salt Creek Field, now owned and operated by the Salt Creek Consolidated Oil Co. The filing of the suit also cites 12 other firms and persons as defendants but these are all affiliated with the Salt Creek Consolidated.

This tract of land is the northeast quarter of Section 10-39-79, and the suit is based on a claim that the Texas people hold a lease for 50 years from the original locators of the land and thus the present operators who are operating under Government lease, are trespassers. The tract is said to be worth several millions of dollars and has four wells drilled on it now with a production that will average about 100 bbls. per well.

40 Years Experience In Chain Manufacture



JEFFREY

SS124 AND SS40 CHAINS

(Corresponding sizes, sometimes called 1030 and 1124) are especially made for the hard service this chain is required to perform in oil well drilling.

Write for Bulletin No. 308-B and Quotations

LARGE STOCK ALWAYS AVAILABLE

The Jeffrey Mfg. Co., 933-99 North Fourth Street Columbus, Ohio

Larkin Improved Sand Pump

(PATENTED)

LARKIN'S IMPROVED SAND PUMP (PATENTED)

This illustration is the famous Larkin Sand Pump which is found in every oil field throughout the world.

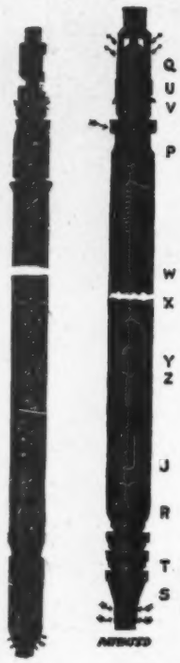
Besides a full line of Drilling and Fishing Tools and Packers of all kinds and sizes, we manufacture the LARKIN Patent Never Slip Pipe Grip, which does away with the old-fashioned way of putting in casing with rope and tongs, and is cheaper, more durable and easier handled.

LARKIN & CO.

Butler, Pa., U. S. A.

Stop Pulling Tubing

The McGREGOR Working Barrel or Plunger Will Reduce Cost of Operating Lease.



It is not an experiment—years of actual service have proven it is the best Working Barrel on the market. It is used by a majority of producers, both large and small, throughout the United States and foreign fields.

Especially adapted for wells making sand or with worn-out working barrels or leaky valves. On new wells use McGregor Seat, Part M.

CUP PACKER

Patented April 15, 1919

Exclusive Improvement on Barrel

This new Cup Packer on top prevents barrel from sticking and sand from settling in between tubing and outside of barrel.

Can be applied to any McGregor Working Barrel in oil fields. Can be ordered separately; 30,000 in use. If you wish cup packer, specify same on order.

See your dealer or write us for circular

McGREGOR WORKING BARREL CO., Inc.

Sole Manufacturers

BRADFORD, PA.

Stop Fighting Hard, Dirty Water

by installing Permutit Water Softeners and Filters and preventing the formation of scale, sludge and mud in your boiler tubes and connections.

"Permutit" apparatus is guaranteed to deliver clean, scale-free water, and will cut fuel consumption 10 to 25 per cent—reduce boiler tube replacements and repairs—eliminate boiler cleaning. You can also provide suitable water for domestic purposes for your men.

Thousands of Permutit Softeners are in use the country over. Write for information.

THE PERMUTIT COMPANY

Offices in all principal cities

440 Fourth Ave., New York

FEDERAL INCOME TAX AND THE OIL INDUSTRY

(Continued from page 16)

This estimate may be made on the basis of the producing portion with due regard for well spacing, drilling program, etc.

A fact of great interest is that all available information regarding production may be used in the effort to correctly estimate the recoverable reserves. On the other hand, however, only such information as is known on the date of discovery, or within 30 days thereafter, may be used in the evaluation of such reserves. Further, if the original estimate of reserves is later found to be materially erroneous, the taxpayer may redistribute the unit of depletion by the recalculation of the reserves, provided the permission of the commissioner is obtained. If the value is once set up and approved, however, no change may be made therein unless there is a virtual change of ownership.

Estimation of Gas Reserves

Depletion deductions with respect to gas properties must be supported by an estimate of the reserves as in the case of oil properties. The best available basis for computing gas depletion, except under very abnormal conditions, is the decline in "closed" or "rock pressure," taking into consideration the modifying effects of water encroachment, atmospheric pressure, etc.

The application of this method to an individual well is as follows:

The known elements are: The closed, or rock pressure, at the beginning of production and at the end of the tax year or period, and the actual production of gas during the same period. Therefore, the production "per pound of rock pressure declnie" can readily be determined.

The assumed pressure at the time of abandonment must then be determined for the field, considering booster plants, line pressures, etc. The difference between the last measured pressure and the pressure at abandonment is the "pounds rock pressure decline" still available. This figure multiplied by the "production per pound of rock pressure decline" represents the future production, or recoverable reserves from the given well.

Estimates for the undrilled but proven portion of the property may be made in a manner similar to that used for an oil property, considering drilling program, well spacing, modifying effects of water encroachment, etc.

Valuation of Reserves for Tax Purposes.

After having arrived at the "recoverable reserves" of a given property, or the taxpayer's interest therein, it becomes necessary to evalute such reserves as of the "basic date" (that is, the date as of which valuation is made) for the purpose of computing the "depletion sustained" (except where the element of cost is the basis for the depletion allowance).

Two practical methods are available: First, by comparison with actual sales of similar properties; second, by appraisal. If the former method is used, a full and complete explanation must show why the properties are to be regarded as comparable. Also, complete proof must be presented to the commissioner that the value set up is on the basis of the sale and actual transfer made.

The appraisal method proceeds substantially as follows:

After having calculated the units of the "recoverable product" applicable to the interest involved, we must next consider the price for which such product will be sold in the successive years of production. The Treasury Department's present practice is to use the price prevailing on the basic date. This price must be applied (so far as depletion is concerned) to the total expected production throughout the life of the property. Therefore, a high price prevailing on the date of discovery, or other basic date, is apt to result in a high depletion "unit."

To ascertain the "expected return," or selling price of the production in any future year (for depletion purposes), the estimated production for such year is multiplied by the basic price. The sum of the "expected returns" for the successive years of production is the total "expected return" from the property. This total, however, cannot be regarded as the fair market value of the interest involved, inasmuch as the payments for oil sold will be made upon a series of future dates. Therefore an appropriate discount should be applied to these future payments (similar to discounting a series of bankable notes), and thus bring them down to their "present worth" as of the basic date.

Another departmental practice requires that an additional discount be applied for various hazards of development and operation. This factor will vary from 10 to 50 per cent depending upon the known field development, geological conditions, water hazards, etc., known on the basic date.

Up to this point, the procedure is identical for both the working and royalty interests. However, the remainder

THE STITT

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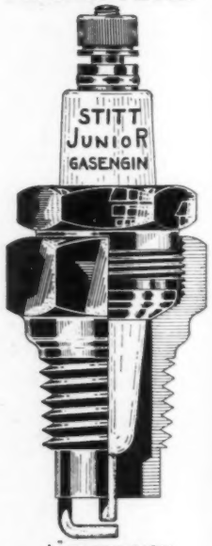

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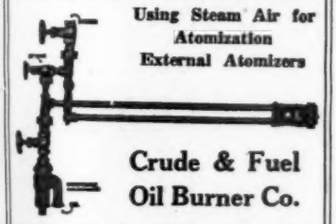
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of the computations are somewhat different for the various interests.

Depletion Allowance for Royalty Owner

After applying the discount and hazard factor, the royalty owner, in order to arrive at his "net capital sum," must still deduct known future expenditures, such as the 3 per cent gross production tax in effect in Oklahoma.

We have now ascertained the royalty owner's share of the total barrels and his "net capital sum" recoverable through depletion. In order to distribute the depletion over the producing life of the property, depletion is taken on a "per barrel basis." In other words, the royalty owner's net capital sum is divided by his proportion of the gross barrels of recoverable oil and the quotient is his "depletion unit." This is applied to his annual production to determine his "depletion allowance" or credit against gross income.

Depletion Allowance for Operating

As above stated, the procedure in the appraisal is the same for the royalty and operating interests through the point where the hazard risk factor is applied However, the operators' development and operating costs must now be considered.

From the sum remaining after deducting the hazard factor above mentioned the operator must deduct an amount equal to the estimated cost of developing the property (including provisions for the hazard of lost tools, fishing jobs, collapsed casing, etc.), and also the estimated cost of operating, including the approximate lifting cost for eight-eighths of the oil, although his individual portion may be considerably less than that amount. (Many operators include the expense of the gross production tax in the lifting cost.)

The final result of these computations is the "net capital sum" recoverable through depletion, or the fair market value as of the basic date, based on discovery. The depletion unit and allowance are then determined in the same manner as in the case of the royalty owner.

Development costs may be deducted (except cost of physical property) as an expense in the year in which they are paid out, or at the option of the taxpayer be charged to capital sum. Election once made under this option is final and will control the returns for all subsequent years. The most general practice is to deduct operating and development cost. The additonal "capital invested" in the property may be returned through a depletion allowance, except cost of physical property which is returnable through depreciation. Development costs which may be so treated include: Geological and other surveys, made subsequent to acquisition; roads, water supplies, hauling, wages, drilling, shooting, overhead charges (incident to drilling wells), fuel and all similar expenditures.

Valuation of Gas Reserves

The valuation of gas reserves (for tax purposes) follows the same general procedure as outlined for oil properties. The unit, however, if reserves are estimated or closed, or rock pressure, is in "pounds of pressure lost," which represents volume used. The depletion allowance is obtained by applying the depletion unit to the total pressure decline during the year.

In concluding this article, it is recognized that many important factors or details have been barely mentioned. Space permits only the briefest development of the subject. If this article shall prove helpful to the reader's understanding of the statute and regulations in regard to depletion allowances for oil or gas properties, and their financial importance to him, its object will have been attained.

* * *

The next article will be "Analysis of Individual Income and Expenditures," in diagramatic form. It should be of considerable assistance to the taxpayer in distinguishing between "taxable and exempt income" and between "allowable and unallowable deductions."

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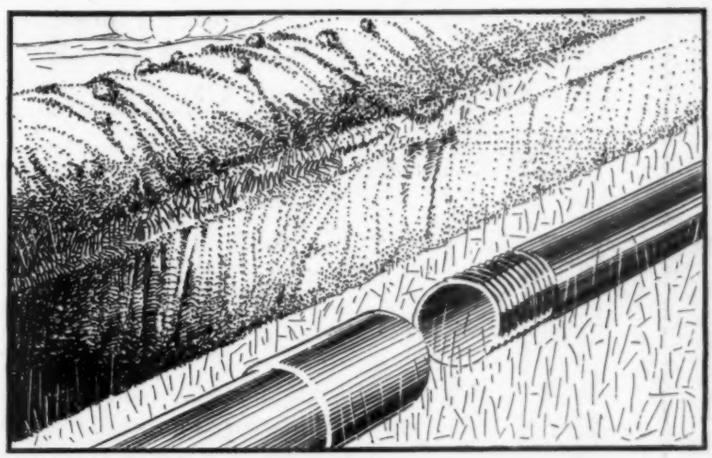

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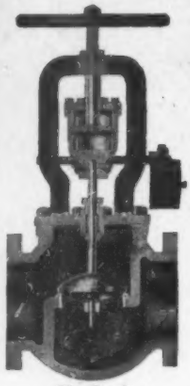

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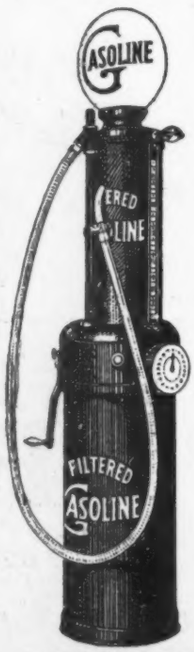

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PLAN MERGER OF NINE OHIO GAS COMPANIES

A $20,000,000 merger contemplated by Ohio gas companies is announced in an application filed with the state public utilities commission recently asking for authority on the part of the Buckeye Gas Co. of Circleville to purchase the properties of eight other gas companies, says "Natural Gas" the official organ of the Natural Gas Association of America.

The largest of the companies involved is the Logan Natural Gas & Fuel Co., with offices in Columbus, Ohio. The Buckeye Co. is named as the purchaser largely in order to preserve the name, it being a mutual agreement among the nine companies to re-organize, as subsidiaries of the Union Natural Gas Corporation, a Pittsburgh firm.

Present capitalization of the companies is shown to be $11,461,600, while a recent appraisal shows the value of the various properties to represent more nearly $25,000,000.

The companies which the Buckeye proposes to take over, and the amount of par value capital stock which the Buckeye proposes to transfer to the credit of each, are as follows:

Athens Gas, Light & Electric Co., Athens, $60,000; Bellevue Gas Co., Bellevue. $50,000; Citizens Gas & Electric Co., Elyria, $300,000; Citizens Gas, Light & Coke Co., Findlay, $200,000; Fremont Gas, Electric Light & Power Co., Fremont, $10,000; Logan Natural Gas & Fuel Co., Columbus, $18,900,000; Marion Gas Co., Marion, $10,000; Newark Natural Gas & Fuel Co., $150,000.

The eight companies enumerated above lay claim to assets of nearly $35,000,000.

Seek to Give Better Service

E. P. Whitcomb, president of the Union Natural Gas Corporation, of Pittsburgh, Pa., said the consolidation was undertaken to provide for more economical operation, eliminating costly duplication. The merger when effected, he said, will afford more satisfactory service than is now possible.

"We are acting under the name of the Buckeye Gas Co., and naming it as purchaser for the purpose of maintaining that corporate name." Mr. Whitcomb stated, "and the primary purpose is to secure capitalization more nearly representing the actual value of the companies I have named and to effect and secure economies in operation."

Those Who Direct the Company

The Union Natural Gas Corporation is incorporated under the laws of Delaware and has an authorized capital stock of $10,000,000. Other officers and members of its directorate are: S. Y. Ramage, of Oil City, vice president; Hartman Stehley, treasurer; David E. Mitchell, secretary; A. J. Newman, comptroller; A. A. Armstrong, assistant general manager. The directors include Mr. Whitcomb, Mr. Ramage, Mr. Armstrong, H. McSweeney of Atlantic City, Joseph Seep of Oil City, P. W. Lupher, of Columbus, O.; W. W. Splane of Oil City, T. W. Phillips of Butler, Pa., and J. Arter Fisher.

INTERESTED IN OIL, LEAVING FOR ORIENT

OIL CITY, Pa., Dec. 30.—S. C. Samson and C. C. Young, representatives of an English oil concern, with headquarters in London, the former of whom has been at the Arlington Hotel for some weeks, the two being interested in oil developments at Walnut Bend, left for New York Wednesday, from where they will sail for England next week, and after a few days spent there will leave for Burma and other points in the Orient.

Both men have been long associated together in mutual interests connected with the oil industry, Mr. Young residing in Oil City, but having spent many years in the Orient.

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STUDY OF PROBLEMS OF DEEP DRILLING

(Continued from page 98)

"From the shallow fields of eastern Kansas and northeastern Oklahoma, requiring 5 to 25 tons of casing per well, to the Cushing, Okla., and Butler County, Kansas, fields, requiring approximately 100 tons of casing, the operator drilling a well had increased his casing, used not less than five times in quantity, and his cost from two to three times in dollars per ton, or his total cost in casing a well had been increased over 10 times.

"At the present time in the Burbank, Okla., Field, about 154 tons of casing are used in each well, and in the Santa Fe Springs Field in California, there is being used 190 to 200 tons of casing per well; and while probably the pulling and re-using of the larger sizes of casing in Burbank, Okla., after allowing for the portion lost and for depreciation, reduces the total amount of casing by 25 per cent, in California, being a rotary country, the amount is not reduced from the above figures. The same relative conditions exist in Texas and Louisiana. Wells in Corsicana and vicinity were of the shallow type. At Spindletop they were about 900 to 950 feet in depth. Each new field has been drilled deeper than these, until now at Goose Creek and Terry, (in Orange County) some oil is found at 4,300 to 4,500 feet, and under such conditions that point to the necessity for drilling to greater depths, and it is the opinion of many that much production in the future, in Texas, will be from below 4,000 feet.

"The problem of how to successfully drill and finish these deep wells is immediately before us, and this deeper drilling brings new problems both from the added costs, and what to use and how to use it, to get the desired results.

Objects in Casing a Well

"How to case any well depends on the conditions in the particular field, but the providing of a suitable casing for a given depth is largely the same problem for all fields.

"In casing a well there are two main objects: First, to shut off the waters and caving formations in order that the drilling may go on to the desired depths. Second, to provide a permanent protection of the hole drilled from the top to bottom to enable the control of the oil or gas found.

"There are two methods of drilling generally used: The cable tools and the rotary.

"Both methods require casing, and the use of from one to six, or even seven strings of pipe.

"In the deeper drilling now prevailing, especially in the Mid-Continent, in north and south Texas and in California, where the great bulk of the oil of the country is produced, wells more than 3,000 feet in depth are the rule, and 3,500 to 4,000 foot wells are not now rare.

"For wells 3,000 feet in depth, and, under favorable conditions, 3,500 feet deep, casing in general use and of present standards is available, but for greater depths, unless it is of special specifications and obtained on special mill orders, there is none.

"The smaller operator has no chance to get a satisfactory casing suitable for these greater depths.

Difficulties Increase at Greater Depths

"A cable tool drilled well in Oklahoma, Kansas or north Texas, if drilled deeper than 2,500 feet, requires usually five strings of casing, and probably a liner at the bottom. The sizes being 15½-inch, 70 pounds to the foot; 12½-inch, 50 pounds to the foot; 10-inch, 40 pounds to the foot; 8¼-inch, 28 or 32 pounds to the foot; 6⅝-inch, 20 or 24 pounds to the foot, with a 5 3-16-inch liner.

"These sizes and weights usually give satisfactory results for wells finished less than 3,000 feet in depth, but the difficulties increase rapidly below 3,000

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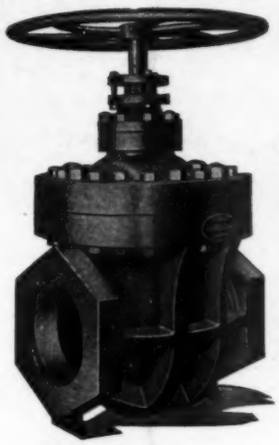

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feet, and if, for instance, it becomes necessary, in shutting off water, to use over 1,600 feet of 10-inch, or over 2,400 feet of 8¼-inch, the weights must be increased, and the clearance between the different strings being so small in the first instance, the increase in weight at once cuts down the size of the next smaller string of casing. Any operator who tries to set a long string of 6⅝-inch casing inside of 32-pound, 8¼-inch casing, will usually find it poor business.

"This problem, with present sizes of casing, is not solved by starting with a larger hole, and with larger casing than the 15½-inch, as it is more a question of getting casing sufficiently strong to prevent collapse and without finishing up with too small a hole.

"If this gives trouble in 3,000 to 3,500-foot holes now drilled, the risk of casing troubles in deeper drilling, rapidly increases.

"In rotary drilled, deep holes, we have troubles also. As three strings of casing are usually all that are used, in a 3,000 to 4,000-foot rotary hole, the question of clearances between the strings of casing are not so great, provided a sufficiently large hole is started. If the formation in which the oil is found is definitely known, a usual Gulf Coast hole, drilled to 3,000 or 3,500 feet, could, and probably would, be drilled with 12½-inch, 10-inch and either 8-inch or 6-inch, with probably a 4½-inch liner or strainer in the sand; but as most of these Gulf Coast fields either do not have their sands regular, or have several sands, it is desirable to finish with greater size than 6-inch casing, as the last string.

Failure to Properly Cement

"Much of the trouble in the Gulf Coast drilling comes, in my judgment, from a failure to properly cement, not only the last casing string, but all three strings, and to cement them properly; and from not commencing with a sufficiently large hole and large casing, to permit the proper and safe cementing of each string of casing.

"Because of the numerous small tracts and the close drilling, so prevalent in all of these Gulf Coast fields, all operators should use the best possible methods of casing and cementing their wells.

"The California operators, operating under some differing conditions, have much improved results over those of the Gulf Coast. In Santa Fe Springs and Signal Hill, both rotary fields, they are successfully making 3,600 to 4,000-foot wells and setting 1,220 feet of 15½-inch casing, 3,495 feet of 11-inch and 3,700 feet of 8¼-inch casing, finishing up usually with a liner into the sand. These sizes used in such long strings, require very thorough cementing, and do not permit the bailing of the outer strings.

"In my judgment the Gulf Coast operators will improve their results by starting larger holes and by always cementing their strings of casing, and the best practice would be to finish with the last string not less than 7 inches inside diameter, and have at least 2 inches clearance between each string of casing.

"This method requires an off-sized casing, that is, the 11-inch, or some other intermediate size, to give a greater clearance for the 7-inch, inside diameter, long string, than the regular 10-inch size casing would give.

New Casing Sizes Suggested

"It has been the effort of this committee to endeavor to suggest what new sizes of casing, if new sizes are required than the present old standard sizes, will best answer the purpose of both rotary and cable drilled deep wells, and in doing so, to provide for the even deeper tests to 5,000 feet and over, which deeper tests operators are even now trying to make, but with no success, largely on account of inadequate casing material now in use.

"New sizes and specifications for casing for deep drilling should, as nearly as possible, be uniform for all fields, and for both standard and rotary drilled wells. A uniform sized casing shoud be more

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cheaply obtained than if the mills were required to make an unnecessary number of sizes.

"A meeting of the committee was held at Tulsa, Okla., on November 13, and was attended by 13 men representing California, Oklahoma, Kansas, north and south Texas, Louisiana and Arkansas producers, and 14 members from the mills and supply houses manufacturing and handling casing. It was unanimously agreed that the present sized casing does not meet the requirements for this deeper drilling, and that for the present deep drilling of 3,000 to 3,500 feet, and for deeper wells, a new standard of sizes is necessary.

Larger Strings of Casing Advocated

"This committee, representing the Mid-Continent Oil & Gas Association, will expect to make its final recommendations soon, and its conclusions so far have been on the following lines:

"For deeper drilling than 3,000 feet and down to 5,000, or even 5,500 feet, the larger strings of casing must be used.

"A deep hole should, as nearly as possible, be completed and cased with not less than the present sized working conditions at the bottom, that is, to permit the setting of not less than a 4½-inch liner, if a liner is required.

"To complete a 5-inch, inside diameter, cased hole to 5,000 or 5,500 feet, will require eight strings of casing for a standard tool drilled well, estimated to be set in a 5,000-foot hole, probably about as follows: One string at 300 feet, one at 700 feet, one at 1,000 feet, one at 1,500 feet, one at 2,000 feet, one at 2,900 feet, one at 4,200 feet and one at 5,000 feet. Under better conditions, seven, or even six strings may be sufficient, but all must be figured on the proper strength and clearance allowances for the setting of the greater number, if required.

"This will require for the inside or longest string of casing, not less than 4.9 to 5 inches inside diameter, and of such strength not only to resist a collapsing tendency of a water pressure of .434 pounds per foot of depth of hole, with a two to one factor of safety, but also with a tensile strength of material and of joints to safely raise and lower the weight of a 5,000 to 5,500-foot string, with the added friction in the hole in case of raising. Upset end casing, for the purpose of strengthening at the threads, may be necessary for this longest string. At the top of a 5,000-foot string of such casing the weight on the thread would run 22,000 to 23,000 pounds per square inch, and with an elastic limit of the material of not to exceed 33,000 pounds, it would not be advisable to lessen this strength by weakening the material as cutting the threads would do. Upsetting the ends should overcome this; as upsetting decreases the clearance room, a larger next outside casing is required than otherwise. The outside diameter of the couplings on such a string, unless the casing is upset end, would be from 5.75 to 5.92 inches. It was suggested, and is well worthy of consideration, that this string could be welded solid, using no collars or threads. It would increase the clearance and also permit of a large size being used.

Greater Clearance Required

Longer strings of casing should require some greater clearance if trouble is to be avoided, hence clearances of not less than five-eighths of an inch and up to .8 of an inch have been used by the committee. Such a string of casing, subject to possible changes on the three large strings to allow for some changes in the thickness of the collars, would have outside diameters of 24 inches, 21¼ inches, 18⅝ inches, 16 inches, 13⅜ inches, 10¾ inches, 8⅛ inches and 5¾ inches.

"The latter string would weigh about 22.6 pounds per foot, and could easily be set to 5,000 feet with a factor of about two to one safety. The next outside string would weigh about 39.9 pounds, and could easily be set from 4,200 to 4,500 feet in depth. Both of these strings would take care of any drilling now in sight.

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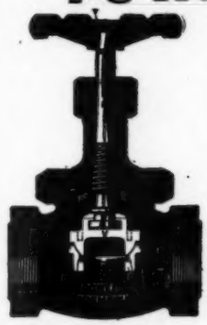
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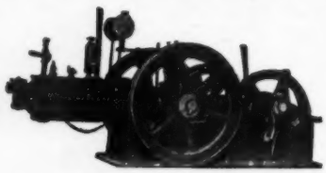

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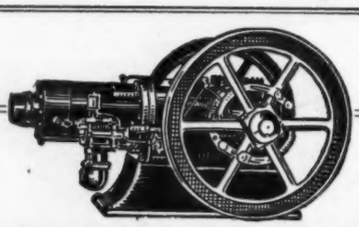

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"The couplings for casing should be made seamless, if steel, and should have a higher carbon ratio than the pipe, to prevent siezing or burning of the threads. Some of the manufacturers claim to have methods of preventing this, but these do not work out in practice, as when threads have to be re-cut. It is also thought that as the counter-bore or recess in couplings is only of value as a guide, and for the protection of the threads, these need not be deeper than ½ to ⅝ of an inch at the outside. The length of the couplings to be slightly longer than present lengths for equivalent sizes.

"The committee was of the opinion that 10 threads to the inch, and probably ⅜ of an inch taper per foot in diameter, should be adopted for the two smaller sizes, and 8 threads on the larger sizes with probably a ¾-inch taper.

"It was also of the opinion that, for deep rotary drilled wells, from the above sizes and specifications, the two or three strings necessary can be easily picked from the cable drilled well casing specifications as attached, and used for any field and under any condition, with the advantage of avoiding special stocks of casing for rotary drilled wells to all.

"For rotary use a completely cased well with the 8¼ inches outside diameter, or 7.185 inside diameter, with cementing, would be safe for a depth of 5,000 feet, or more. This could go with the second long string of the 12.41 inches inside diameter, or, if the operator desired, could be used with the 9.76 inches inside diameter with much greater clearance than is at present possible. The operator would then have a hole either for producing his oil under the most favorable condition if no liner was required, or for the setting of an ample sized liner, or for further experimenting or testing.

"This would be a first step at standardization, and eventually, as the mills are prepared to make these sizes, the sizes now in use will gradually be superseded.

"The new sizes that will be recommended can be used for any depth well; where the greater strength is not needed, casing of the same outside dimensions but lighter in weight can be furnished by the mills without any change of tools and machinery for making; and at the necessary decreased cost.

"The operator in the fields will be able to handle these sizes of different weights, with the same tongs, elevators, etc. It was the opinion of the committee that this casing should be listed as "O. D." casing, and the "O. D." sizes specified, as these will not vary. The present casing in use is listed as "I. D." and the size given is misleading, as this varies with the weight for the same sizes.

"At the present time California is trying various experiments in providing casing for their deep drilling; south Texas is doing the same; north Texas and Oklahoma have been endeavoring to get by with the old sizes, but have lost much money in doing so.

Facts Developed by Investigations

"Unquestionably four facts have been established by our investigations:

"That the production of oil is from increasingly deeper wells, and that this increase in depth of wells probably will continue.

"That there is no regular stock or size of casing adapted for these greater depths, as because of the necessity of using heavier and stronger casing, the present stock sizes cannot be used by simply increasing the weight; there being no room, or clearance, to permit the necessary increase in weight.

"That the present deep drilling and the prospective future deeper drilling demand casing of entirely new specifications, and that as soon as possible this should be provided.

"That in making up these new specifications, both for economy of manufacture, and for economy in using, a specification should be arrived at which will meet the demands of all the fields, and under all conditions, a single "O. D." thread and taper for the same sized hole, changing the weight only, and from the

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inside, will permit the use of the same tools, fittings, etc.

Drill Pipe for Deep Rotary Wells

"The subject given me is "pipe" for deep drilling wells, and may well include "drill pipe" for deep rotary wells. Our committee has been investigating the troubles encountered in this drilling, and, stated briefly, with the following results:

"Rotary drilled wells were first drilled with a light rotary, a 25 or 30-horsepower steam engine, a 25 to 35-horsepower boiler, and with the use of 4-inch and 6-inch line pipe. The weight of this pipe was increased slightly, but twist-offs were frequently encountered, usually at a point just above the collar, or the pipe would expand the collar and pull out of it. The use of tool joints has later largely done away with this latter trouble, as it was the frequent pulling out and unscrewing from the collar that loosened up the joint, and it was also at this point the trouble occurred, that is, at every third or fourth joint of the drill stem. The breaking out of the drill stem in thribles or in fourbles, and at a tool joint, has been a great improvement in rotary drilling; but it has not done away with the twist-offs in the hole, and the consequent fishing jobs.

"In my judgment, the fault is largely the result of not so much the weakness of the drill pipe, but of the additional strain to which it has been subjected, and that the remedy is on top of—not in—the hole.

"From one 25-horsepower engine we have gone to one, and sometimes two, 50-horsepower engines to drive the rotary; from a 25 to 30-horsepower boiler, to two 40 to 50-horsepower boilers; from a small rotary and draw works, to the heavy type now in use. In other words, every defect of power or of material on and about the derrick has been apparent and easily remedied, with the result that there is scarcely any weakness or any limit of power to turn the drill stems, and it is inevitable that with this power and strength at the rotary, when the drill pipe sticks, or the bit gets caught, a breakoff at some point will be the result, and this can only occur in the hole—the place where it should be avoided. Any break on the floor of the derrick is much easier remedied than is a fishing job. Some character of a break connection, a shearing pin, or an automatic cutoff of some kind, that will warn the driller when his pipe is sticking, and that will act at a strain of 60 to 70 per cent of the strength of the material in the hole, should save most of the twistoffs in drilling a rotary well.

"Too light a drill stem is not advisable. A light stem is popular with the drillers, being easier to handle. It can be made of better material and as strong as the heavier stem usually used, but it is not stiff enough to prevent a crooked hole, and, in case of much loose sand in drilling, is liable to cause more wash of the sand by the slapping of the wall; and, if the driller is not careful and feeds his pipe too freely, he will find himself trying to rotate a drill stem that is not vertical, either bulging out into his washed-out sand hole, or running in a crooked hole, in either of which cases he will inevitably twist it off.

"A fairly rigid drill stem, probably of long lengths, say 26 to 28 feet to avoid as many joints as possible; a weaker point to break at the top of the hole than the strength of the material in the hole; a hole started with larger casing, so as to allow for the setting of the necessary casing to finish the last water string not less than 7 inches (7⅛ inches being the size our committee probably will recommend); with a 2-inch or more clearance between the sizes of casing used; also with each string of casing used in a rotary hole cemented, will, in my judgment, solve 75 per cent of the present rotary drilling troubles.

Benefits of Proposed Changes

"With a carefully standardized method of rotary drilling and with casing adequate for the deeper depths of present drilling requirements, and as nearly standardized for the needs of all the fields as is possible, we will not only have cheaper wells than otherwise, but will

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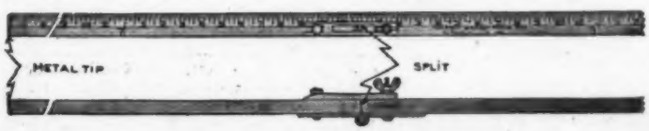

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be able to make tests and conduct drilling that is impossible under the conditions now existing.

"The committee of the Mid-Continent Oil & Gas Association, having this investigation in charge, are not only convinced of this, but will soon expect to submit for the benefit of the producers, specifications which, in their judgment, will permit this standardization.

SEMI-DIESEL MOTOR GAS OIL IS USED IN FRANCE AS FUEL

PARIS, France, Dec. 23.—The "semi-Diesel" automobile now is an accomplished fact. One of these oil-burning motors recently was installed on a heavy touring car chassis weighing two and one-half tons. The car made the trip to Bordeaux and back in two days, carrying five passengers, much baggage and 60 gallons of reserve fuel.

The motor is designed to burn "gas-oil," a heavy petroleum product remaining after the kerosene has been extracted. It costs here 12 cents a gallon as compared with 56 cents for gasoline. The car made about 7 miles to the gallon and about 280 miles on a gallon of lubricating oil, so that the cost of operation worked out at 2 cents a mile.

Experts in charge of the experiment predict a great future for this type of motor. The engine used was found too small for the weight it had to pull, but an average speed of 30 miles an hour was maintained, which was regarded as creditable. The "semi-Diesel" type of motor, its friends say, not only costs less for upkeep but is simpler and therefore cheaper to make than the standard type. Experiments are being conducted with the idea of using this new engine on the automobile buses of Paris.

BAR RUBBER TUBING

TOLEDO, Ohio, Dec. 30.—The two firms which supply Toledo with natural gas have refused to turn on connections in houses where they know rubber hose connections are used. They require rigid iron piping to be installed before the customer is served. The firms are the Toledo Edison Co., and the Northwestern Ohio Natural Gas Co.

It is said a majority of insurance companies operating here refuse to insure buildings in which gas stoves, heaters and other natural gas appliances are connected up with rubber tubing.

INCREASE IN CAPITAL

OKLAHOMA CITY, Okla., Jan. 2.—Two of the largest increases in capital stock made during the year by oil concerns were recently made by the Bolene Refining Co., of Enid, $200,000 to $1,000,000, and the Pulaski Oil Co., of Tulsa, $50,000 to $3,000,000. W.F.K.

TRIBAL OSAGE OIL LEASES AT PUBLIC AUCTION, JANUARY 18, 1922, BY U. S. GOVERNMENT.

January 18, 1922, at Pawhuska, Oklahoma, about 35,000 acres will be offered for oil leases in quarter section tracts. Bids will be for bonus in addition to royalties, 25 per cent payable on day of sale, balance in three annual installments, with acceptable security. Within advertised area there are about 8,140 oil wells producing from 1 bbl. to 3,000 bb'ls. each, the total daily production for October, 1922, being about 116,000 bbls.; also, there are about 245 wells drilling. All lands are now leased separately for gas. Blue print maps of area advertised, showing tracts offered, together with tracts leased, also showing tracts producing oil or gas, can be had for 50 cents each, also logs of producing wells for 25 cents each well. Write United States Superintendent, Osage Agency, Pawhuska, Oklahoma, for maps, logs or further information.

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